

Johannes Tripps^{*}
Branka Č. Vranešević^{**}
Moisés Hernandez Cordero^{***}
Mihailo St. Popovic^{****}

ON THE SUBJECT OF IMPERIAL DIGNITY: A CONTRIBUTION TO THE STUDY OF THE CROWN OF KING STEFAN UROŠ III DEČANSKI IN THE MONASTERY OF CETINJE¹

ABSTRACT: The crown of King Stefan Uroš III Dečanski, which is now kept in the Treasury of the Monastery of St. Petar Cetinjski in Cetinje and which served as the main regalia in the coronation of Prince, future King, Nikola I Petrović Njegoš of Montenegro, has not been studied in its entirety until today. Using different methodological approaches from the domain of history and art history, as well as the Structure from Motion and Multi-View Stereo (SfM– MVS), the authors of the paper analyzed the crown to understand its use and significance, determine its authenticity and place of origin, and date it if possible. A closer examination of its shape and craftsmanship techniques shows an ensemble of enamels, precious stones, and pearl embroidery dating from the seventeenth, eighteenth, and nineteenth centuries, assembled around 1840.

KEYWORDS: Crown of Stefan Dečanski, coronation of Nikola I Petrović Njegoš, Serbian medieval art, Structure from Motion, embroidery, enamel.

^{*} Department of Computer Science and Media, Art History of Material Culture, University of Applied Sciences Leipzig, Leipzig, Germany; johannes.tripps@htwk-leipzig.de. The German text written by Johannes Tripps has been translated into English and proofread by Patricia Smith.

^{**} Department of Art History, Faculty of Philosophy, Belgrade University, Belgrade, Serbia; bvrane@f.bg.ac.rs.

^{***} Austrian Archaeological Institute, Digital Archaeology and Classics, Austrian Academy of Sciences, Vienna, Austria; Moises.Hernandez.Cordero@oeaw.ac.at

^{****} Institute for Medieval Research, Department of Byzantine Research, Austrian Academy of Sciences, Vienna, Austria; Mihailo.Popovic@oeaw.ac.at.

¹ This article represents a scholarly outcome of the project “Beyond East and West: Geocommunicating the Sacred Landscapes of ‘Duklja’ and ‘Raška’ through Space and Time (11th–14th Cent.) / HOLDURA” (FWF Austrian Science Fund International Project I 4330-G; in cooperation with the DFG German Research Foundation; <https://tib.oeaw.ac.at/subprojects/holdura> [23 January 2024]). We are indebted to the FWF Austrian Science Fund and the DFG German Research Foundation for their funding and support.

The Holy King Stefan Uroš III Dečanski (reigned 1321–1331) is one of the best known Saints and Holy Kings of the Serbian Orthodox Church. He was born as the oldest son of King Stefan Uroš II Milutin (reigned 1282–1321) and his wife Elizabeth, a Hungarian princess, around 1276, and died in Zvečan on November 11th, 1331. On Christmas day, January 6th, 1322, Stefan Uroš III Dečanski was crowned the King.² After canonization in 1343, his cult became extremely widespread and powerful.³

The specific case of the most significant royal insignia, the crown, in our case the crown of King Stefan Uroš III Dečanski, has not been completely studied so far. Namely, there are numerous controversies regarding the authenticity of the crown, which confronts Christian beliefs and issues of science, being at the same time a relic and a ruler's insignia. To establish whether there is any truth in the deeply rooted beliefs, our team conducted a thorough analysis of the crown, which involved a variety of approaches. Our aim was to address several issues concerning the crown kept today in the Treasury of the Monastery of St. Petar Cetinjski in Cetinje, Montenegro. It played a prominent role in the coronation of King Nikola I Petrović Njegoš in 1910 when his 50th crown jubilee and the proclamation of the Kingdom of Montenegro took place. Its role in the history of Montenegro, followed by an art historical iconographical analysis based on the comparison to medieval church frescoes, icons, seals, and coins, on which King Stefan Dečanski is represented with his royal regalia, leads to several conclusions regarding the authenticity of the crown, but also of the importance of the widespread cult of Saint King Stefan Dečanski established in 1343 (СОЛОВЈЕВ 1924: 284–295; ЋОРЂЕВИЋ 1983: 38; МАРИЈАНОВИЋ-ДУШАНИЋ 2007: 337–368). Furthermore, a previously unused method of analysis utilizing the most modern techniques including a Structure from Motion and Multi-View Stereo (SfM–MVS), comprising VIS, UVA and UV fluorescence analysis of the crown, was carefully undertaken and today we have the opportunity to present its results. A closer examination of its shape and craftsmanship techniques shows an ensemble of enamels, precious stones, and pearl embroidery, thus allowing a more precise dating.

The crown in Cetinje is shaped as a domed stemma, indicating Byzantine patterns, decorated with pearls, precious stones (rubies), and semi-precious stones (emerald or jade, rose quartz, and aquamarines). It is circular with a base of purple velvet with appliqué motifs that have fallen off in some places. The cross frame is probably made of copper, on which pearls, precious and semi-precious stones, enamels, filigree, and medallions are placed. Within that frame, a velvet cap is inserted with numerous sewn precious and semi-precious stones with pearls, medallions, and enamels.

² There are numerous published books and papers on Saint and King Stefan Uroš III Dečanski. We are going to mention just a few, see ЋОРЂЕВИЋ 1979: 135–150; СУВОТИЋ 1981: 111–138; ЦАМБЛАК 1989, 49–87; ЋУРИЋ 1985; ЋУРИЋ 1989; ПОПОВИЋ 2006, 143–183; МАРИЈАНОВИЋ-ДУШАНИЋ 2007.

³ The cult of Stefan Dečanski experienced great popularity in Serbia between 1557 and 1690, and ranks among the most widespread, in addition to the cults of St. Sava and St. Simeon, see МАРИЈАНОВИЋ-ДУШАНИЋ 2007: 10–13.

On the top of the crown, there are semi-precious stones arranged in the form of a rosette in the center, surrounded by pearls. From that point, the frame of the crown is formed following the shape of the cross that descends onto the circular rim of the crown. Pearls with motifs of flowers and pomegranates along with rubies in a flower-shaped form are strung on a bronze frame. At their ends, on the bottom rim of the crown, there are medallions with the figures of Christ, the Holy Virgin, John the Baptist, and St. Petar Cetinjski (obviously of a later date, as it is proved with further analysis, please cf. below). Between them are medallions with representations of cherubs (stylistically resembling the above-mentioned medallions), with semi-precious stones (emerald or jade, rose quartz, aquamarines) surrounded with pearls above the cherubs, and below there are pink, green, and blue semi-precious stones with pearls, forming the shape of a flower executed in enamel.

The crown is highly significant, especially in Montenegro and Cetinje, as being the key relic allegedly used for the coronation of Prince Nikola I Petrović Njegoš (reigned 1860–1918), as well as for its remarkable religious importance among the Orthodox Serbs.

Historical Introduction

Our (hi)story begins in the Treasury of the Monastery of St. Petar Cetinjski in Cetinje, where the crown, attributed to the Serbian King Stefan Uroš III Dečanski, is kept (THE TREASURY: 150–151). This paper addresses, among other things, the following questions—whether such an attribution is or can be founded on hard art historical facts and whether the crown played any role during the events from August 15, 1910, according to the old Julian calendar, when Prince Nikola I Petrović Njegoš of Montenegro celebrated his 50th crown jubilee, proclaimed the principality of Montenegro a Kingdom and took the title of a King.⁴ This part of the paper further deals with the second question.

The political developments in Montenegro in the year 1910 were keenly observed by the Austro-Hungarian press, being a neighbour of the newly established Kingdom. In this very context, the newspaper *Czernowitzer Tagblatt* reported that “Unter Festlichkeiten, wie sie das kleine Montenegro noch nie gesehen hat, erfolgt die Erhebung des Fürstentums zum Königreich und die Krönung des Herrschers mit einer vollgewichtigen Königskrone”.⁵ This quotation is of much interest to us since it mentions the object of our research in a symbolic manner, namely the “king’s weighty crown” (“vollgewichtige Königskrone”). In this part of the paper, we describe, very briefly, the circumstances of Nikola’s coronation and try to trace references and descriptions of the crown itself—if they appear at all—in the Austro-Hungarian and Montenegrin newspapers.

According to the Austro-Hungarian media, Nikola I Petrović Njegoš intended to be crowned in the Monastery of Gračanica in Kosovo, where, as the newspaper reports state, the Serbian knights received Holy Communion before the battle of Kosovo Polje in 1389

⁴ The speeches delivered by Nikola I on this very day are published in: NIKČEVIĆ 2009: 161–169. See also Mühlviertler Nachrichten, 3. September 1910, 22. Jahrgang, Nr. 36, 2–3.

⁵ Czernowitzer Tagblatt, 24. August 1910, VIII. Jahrgang, Nr. 2253, 1.

and which was still under Ottoman rule in 1910. Therefore, Nikola I had to address the Sublime Porte to receive permission for the monastery's church to be used for this solemn event. Furthermore, it is reported by the Austro-Hungarian press that the Patriarch Luki-
jan Bogdanović of Sremski Karlovci (1867–1913) should perform the coronation, in which Orthodox clergy from Serbia and Montenegro should also take part. Still, in this case, the Austro-Hungarian approval was needed for the Patriarch's participation.⁶ This intention, which had first been reported by Serbian newspapers, was dismissed by well-informed circles in Belgrade.⁷

Soon, it became clear to the Austro-Hungarian media that two celebrations were planned—the 50th crown jubilee of Prince Nikola I Petrović Njegoš was to be celebrated in Cetinje on August 13, 1910, according to the old Julian calendar, while the coronation was about to take place a few days later in the church of the Monastery of Sveti Petar Cetinjski in Cetinje and to be conducted by the Metropolitan of Montenegro.⁸ The Austro-Hungarian newspapers claimed that Nikola I would take the title of “King of Zeta”, which was rebuked by the Montenegrin media and changed to “By the Grace of God Orthodox Serbian King of Montenegro”.⁹ It was reported that the court of the newly established Kingdom was to implement the court etiquette of Austria-Hungary, i.e. of the Viennese court.¹⁰

On the evening of August 8, 1910, according to the old Julian calendar, Nikola I received Tsar Ferdinand I of Bulgaria (1861–1948) in his palace in Cetinje and hosted a gala dinner.¹¹ The *Neues Wiener Tagblatt* even claimed that Tsar Ferdinand was the *spiritus rector* of Nikola's coronation.¹² On August 11, 1910, according to the old Julian calendar, Prince Nikola I Petrović Njegoš received letters of congratulations from Austria-Hungary, Germany, France, England, Greece, and Romania on the occasion of his 50th crown jubilee and the envisaged proclamation of the Kingdom of Montenegro.¹³ Moreover, the Austrian Emperor Franz Joseph I (1830–1916) presented the Montenegrin with two six-year-old thoroughbred horses from his imperial stud farm in Kladrub (today Kladruby nad Labem

⁶ Bregenzer Tagblatt, 2. August 1910, 25. Jahrgang, Nr. 173, 2; Czernowitzer Tagblatt, 31. Juli 1910, VIII. Jahrgang, Nr. 2234, 2; Deutsches Volksblatt, 29. Juli 1910, 22. Jahrgang, Nr. 7748, 3; Egerer Zeitung, 31. Juli 1910, 64. Jahrgang, Nr. 173, 1; Freie Stimmen, Deutsche Kärntner Landes-Zeitung, 30. Juli 1910, 30. Jahrgang, Nr. 88, 3–4; Illustrierte Kronen-Zeitung, 30. Juli 1910, XI. Jahrgang, Nr. 3800, 2; Mährisches Tagblatt, 30. Juli 1910, 31. Jahrgang, Nr. 171, 3–4; Marburger Zeitung, 11. August 1910, 49. Jahrgang, Nr. 96, 5; Mühlviertler Nachrichten, 6. August 1910, 22. Jahrgang, Nr. 32, 3; Die Neue Zeitung, 30. Juli 1910, 3. Jahrgang, 1–2.

⁷ Agramer Zeitung, 2. August 1910, 85. Jahrgang, Nr. 174, 4.

⁸ Agramer Zeitung, 2. August 1910, 85. Jahrgang, Nr. 174, 4; Die Neue Zeitung, 2. August 1910, 3. Jahrgang, Nr. 210, 1–2; Volksblatt für Stadt und Land, 7. August 1910, 41. Jahrgang, Nr. 32, 3.

⁹ Allgemeiner Tiroler Anzeiger, 20. August 1910, III. Jahrgang, Nr. 188, 2–3; Czernowitzer Tagblatt, 11. August 1910, VIII. Jahrgang, Nr. 2243, 2; Steierische Alpen-Post, 23. Juli 1910, 26. Jahrgang, Nr. 30, 1.

¹⁰ Salzburger Volksblatt, 14. Juli 1910, 40. Jahrgang, Nr. 156, 10.

¹¹ Salzburger Volksblatt, 24. August 1910, 40. Jahrgang, Nr. 190, 2–3; Die Zeit, 22. August 1910, 9. Jahr, Nr. 2840, 1–2.

¹² Neues Wiener Tagblatt, 27. August 1910, 44. Jahrgang, Nr. 234, 3–4.

¹³ Mühlviertler Nachrichten, 3. September 1910, 22. Jahrgang, Nr. 36, 2 (therein, the letter of congratulations by the Austrian Emperor Franz Joseph I is published in German); Das Vaterland, 24. April 1910, 51. Jahrgang, Nr. 186, 4; Die Zeit, 31. August 1910, 9. Jahr, Nr. 2849, 1.

in the Czech Republic) and splendid harnesses,¹⁴ while the Ottoman Sultan Mehmed V (1844–1918) sent an Arabian horse as a gift.¹⁵ The National Assembly of Montenegro filed a petition on August 15, 1910, according to the old Julian calendar, requesting the Principality of Montenegro to be proclaimed Kingdom. This was approved solemnly by Nikola I on August 16, thus making him King of Montenegro. Also, on August 15, Nikola I hosted a gala dinner in honor of the Serbian Crown Prince Aleksandar Karađorđević (1888–1934).¹⁶ Later on, Nikola I and his wife Milena attended a liturgy during the festivities.¹⁷ After these events, King Nikola I of Montenegro embarked on a trip throughout Europe.¹⁸ Amongst others, he visited the Austrian Emperor Franz Joseph I in Vienna.¹⁹

A movie of the festivities in Montenegro entitled *Die Krönungsfeierlichkeiten in Montenegro* (The Coronation Festivities in Montenegro), which was made by the Pathé Frères, was shown in the autumn of 1910 in an electric theatre in the Walterstraße in Linz,²⁰ in three cinemas in Graz (the Jakominigasse, the Bioskoptheater Annenhof, and the Edison-Theater)²¹, in the Lifkas Grand Théâtre électrique in Salzburg²², and in the Sofiensaal in Vienna.²³ Although we could not trace the movie made by the Pathé Frères, we did find a movie from 1910 entitled *Proglāšenje Crne Gore za Kraljevinu* (Proclamation of the Kingdom of Montenegro) published online by the Jugoslovenska kinoteka (The Yugoslav Film Archive).²⁴ This might be the movie produced by the Pathé Frères.

As we have seen, the picture provided by the Austro-Hungarian newspapers is vivid, but quite blurred when it comes to details of the coronation. Moreover, there is no mention of the crown of the Serbian King Stefan Uroš III Dečanski whatsoever.

Therefore, we need to turn to the media coverage in the Montenegrin newspapers. *Cetinjski Vjesnik* reports in great detail on the events starting from August 11, 1910 and ending on September 1, 1910. On Sunday, August 15, 1910, *Cetinjski Vjesnik* reports in a symbolic manner that Heaven will place the King's crown of the Nemanjić Dynasty on Nikola's head

¹⁴ Agramer Zeitung, 10. August 1910, 85. Jahrgang, Nr. 181, 4; Egerer Zeitung, 11. August 1910, 64. Jahrgang, Nr. 182, 5; Kärntner Tagblatt, 11. August 1910, XVII. Jahrgang, Nr. 181, 5; Pilsner Tagblatt, 11. August 1910, XI. Jahrgang, Nr. 220, 6; Neue Freie Presse, Abendblatt, 10. August 1910, Nr. 16511, 1; Salzkammergut-Zeitung, 14. August 1910, XVI. Jahrgang, Nr. 33, 34.

¹⁵ Die Zeit, 15. Juli 1910, 9. Jahr., Nr. 2803, 1.

¹⁶ Illustriertes Wiener Extrablatt, 30. August 1910, 39. Jahrgang, Nr. 237, 3, 9.

¹⁷ Salzkammergut-Zeitung, 25. September 1910, XVI. Jahrgang, Nr. 39, 20 (showing a photograph of Nikola I and his wife Milena going to the church).

¹⁸ Sport und Salon, 13. August 1910, 13. Jahrgang, Nr. 33, 4.

¹⁹ Teplitz-Schönauer Anzeiger, 12. Oktober 1910, 50. Jahrgang, Nr. 120, 3; Die Zeit, 25. Dezember 1910, 9. Jahr, Nr. 2965, 9; Znaimer Wochenblatt, 12. Oktober 1910, 61. Jahrgang, Nr. 81, 6.

²⁰ Linzer Volksblatt, 25. Oktober 1910, 42. Jahrgang, Nr. 244, 5.

²¹ Grazer Tagblatt, 22. September 1910, 20. Jahrgang, Nr. 261, 3; Grazer Volksblatt, 23. September 1910, 43. Jahrgang, Nr. 431, 6; Grazer Volksblatt, 24. September 1910, 43. Jahrgang, Nr. 433, 6; Grazer Volksblatt, 1. Oktober 1910, 43. Jahrgang, Nr. 445, 12.

²² Salzburger Volksblatt, 30. Oktober 1910, 40. Jahrgang, Nr. 245, 6.

²³ Neue Freie Presse, 7. Oktober 1910, Nr. 16568, 19; Neues Wiener Tagblatt, 10. Oktober 1910, 44. Jahrgang, Nr. 278, 20.

²⁴ See the following link: <https://vimeo.com/227351466> (20.11.2023).

(“На главу многозаслужнога Господара Николе Првог небо спушта данас Краљевску Круну славних Немањића, ...”)²⁵. The Montenegrin newspaper in its reports pointed to the role of the Orthodox Church. On Saturday, August 14, 1910, Prince Nikola I Petrović Njegoš and his heir visited the newly built *Vladin dom* (Government House) in Cetinje in the morning, where the Metropolitan Mitrofan (Ban) of Cetinje (1841–1920) was also present and inaugurated the building by the blessing of water.²⁶ In the evening of the same day, the Metropolitan celebrated vespers in the church of the Monastery of St. Petar Cetinjski in Cetinje.²⁷ On Sunday, August 15, 1910, Metropolitan Mitrofan celebrated a liturgy of thanksgiving with his clergy at 7 am in the presence of Nikola I in the church of the Monastery of St. Petar Cetinjski in Cetinje. Following the liturgy, the Metropolitan addressed the ruler in a speech, in which he emphasised the importance of the proclamation of Nikola as King for the good of his people and country.²⁸ Finally, on Monday, August 16, 1910, Metropolitan Mitrofan celebrated another liturgy of thanksgiving in the morning again in Nikola’s presence, this time in the Vlach Church in Cetinje, where Nikola and Milena had married in 1860. After that, the Metropolitan addressed the couple in a speech.²⁹

After reviewing the reports in the Austro-Hungarian and Montenegrin newspapers systematically, it has become clear that the crown of the Serbian King Stefan Uroš III Dečanski is not mentioned at any point when the Principality of Montenegro was proclaimed Kingdom. Hence, a coronation act did not occur according to the newspapers, but a formal proclamation was undertaken. Since we cannot gain any additional data on the crown based on the events in 1910, we have to resort to other methodological means.

M. St. P.

To be able to approach the analysis of King Stefan Dečanski’s crown, we must look back at the medieval heritage embodied in the visual representations of the king with a crown as found on medieval fresco paintings, coins, seals and icons so that we could determine whether this is the original crown of Stefan Dečanski or perhaps some of its parts were woven into the crown from Cetinje.

Iconographic and Comparative Analysis of Medieval Representations of King Stefan Uroš III Dečanski with the Crown in the Monastery of St. Petar Cetinjski in Cetinje

The rulers of the Nemanjić Royal Dynasty gained the title of *rex*, that is, a king, consistently emphasizing their dignity with insignia identical to the signs of power of the Byzantine emperors (МАРЈАНОВИЋ-ДУШАНИЋ 1997: 70–80, 153–154; ВОЈВОДИЋ 2002: 265; 2019:

²⁵ Cetinjski Vjesnik, nedjelja 15. avgusta 1910. god., godina III., br. 65, 1.

²⁶ *Ibid*, 3.

²⁷ Cetinjski Vjesnik, četvrtak 19. avgusta 1910. god., godina III., br. 66, 3.

²⁸ *Ibid*, 1–3.

²⁹ *Ibid*, 3.

315–354). Even though Serbian kings turned more to the Constantinopolitan models and the Byzantine hierarchy of power, especially from the time of King Stefan Uroš II Milutin, the crown, as demonstrated by some examples, could also be expressed in Roman, that is Western insigniological vocabulary (ВОЈВОДИЋ 1995: 265–268; 2019: 318–320; РАНЂИЋ 2022).

The period which began with the great conquests of Byzantine territories during the reign of King Milutin and ended with King Stefan Uroš IV Dušan's coronation as emperor at the end of 1345/beginning of 1346, can be identified as a period of increasing adoption of the imperial idea (ПУРКОВИЋ 1976: 17–18; БЛАГОЈЕВИЋ 1981: 527; ФЕРЈАНЧИЋ 1981: 523; 1994: 63; ВОЈВОДИЋ 2002–2003: 143–160; ПИРИВАТРИЋ 2007: 381–409; ВОЈВОДИЋ 2019: 315–354). Rapid Byzantinisation of Serbian society after the peace established between Serbia and Byzantium in 1299 had a substantial impact on Serbian court life and customs (ВОЈВОДИЋ 2010: 52). The presence of Byzantine princesses and dignitaries at the Serbian court, as well as the Serbian royal and diplomatic visits to the imperial capital, suggests that the Serbian milieu was very familiar with Byzantine court customs. Thus, it is not too surprising that the members of the Nemanjić Dynasty, despite bearing the title of king, highlighted their dignity with insignia quite similar to the marks of power of the Byzantine *basileus*. Finally, the complete equalization of the Serbian ruling house with the one in Constantinople was accomplished by the early 14th century.

In Serbian medieval art, especially from the time of King Milutin, Serbian sovereigns increasingly assumed hieratic frontal poses in portraits, typical of the Byzantine emperors during certain stages of the ceremonial (РАДОЈЧИЋ 1935: 28; СПАТНАРАКИС 1976; ВОЈВОДИЋ 2002: 265). In such depictions, as found on frescoes, icons, coins, and charter seals, King Stefan Dečanski is represented wearing royal insignia—a crown or stemma (ПОПОВИЋ 2021: 79, fn. 28). It is circular, consisting of a hoop that encircles the head and a semi-hoop placed over the top. From the lower edge of the hoop hang two pairs of prependicularia, while at the top of the stem is a precious red stone—Orphanus. In Serbian art, King Milutin is the first to be represented with this type of crown (ВОЈВОДИЋ 1995: 266). On some occasions, he is represented with a crossed loros and torakion, ancient Roman imperial insignia, holding a sceptre and an *akakia*, while standing on a purple imperial pillow—supedion (ВОЈВОДИЋ 2019: 326; 2002: 266–269, figs. 10, 11; ВОЈВОДИЋ 2021: 235–248). At this point, it should be emphasized that in Serbian medieval art, when it comes to the representations of King Stefan Dečanski, there was not any consistency in royal depiction (ВОЈВОДИЋ 1995: 267–268, 296; 2002–2003: 152). On the contrary, it is often a question of different representations of the ruler wearing various crowns.

In medieval fresco paintings, there are numerous representations of King Stefan Dečanski. The earliest preserved portrait is on the western wall of the narthex of the Church of Bogorodica Ljeviška, the endowment of King Milutin dated ca. 1310. He holds a scepter in the shape of a cross in his hand and wears a stematogirion on his head (ПАНИЋ, БАБИЋ 1975: 58–63, 66–67; ЖИВКОВИЋ 1991: 50, 52, Т. X; ВОЈВОДИЋ 1995: 285–294, fig. 18, 20; ТОДИЋ 1998; ТОДИЋ, ЧАНАК-МЕДИЋ 2005: 443–444, fig. 362–363; ВОЈВОДИЋ 2010: 44–45;

ЧАНАК-МЕДИЋ, ТОДИЋ 2015; ДАВИДОВ ТЕМЕРИНСКИ 2017: 57-64). This is also the only example of such a crown on the king's head.

The largest number of images are to be found in the Dečani Monastery, the endowment of Stefan Dečanski.³⁰ Judging by the words of Grigorije Camblak, the body of Stefan Dečanski was moved to a coffin in front of the altar space, i.e. the iconostasis, seven years after his burial (ЦАМБЛАК 1970: 306–349; 1989: 49–87; ПОПОВИЋ 2006: 162–172; МАРЈАНОВИЋ-ДУШАНИЋ 2007: 361–368). Next to it, there is an image of Stefan Dečanski, represented in a standing position, slightly bowed, without a supedion, while offering a model of the church to Christ placed in the upper segment. Dečanski is dressed in royal robes, with a halo and wears a high open trapezoidal-shaped crown, similar to Byzantine stemma, with Orphanus on its top (ВОЈВОДИЋ 1995: 278–280, fig. 3). He is painted wearing a similar crown in the Church of St. Demetrios in Peć (ЂУРИЋ, ЂИРКОВИЋ, КОРАЋ 1990: 205, fig. 130; ВОЈВОДИЋ 1995: 278–280; 2007: 298; 2010: 55–56). According to the iconographic features, it can be determined that this crown has no similarities with the crown in the Monastery of St. Petar Cetinjski in Cetinje.

In the south-western corner of the nave, there is another representation of the ruler, with his son Dušan, depicted with a crown in the shape of the Byzantine stemma holding a model of the church while receiving a blessing from Christ placed in the upper segment of the fresco (ВОЈВОДИЋ 1995: 265–266). Even though the crown is not clearly visible due to physical damage, it can be concluded that it is a stemma, when compared to the crown placed on the head of King Uroš, represented on the wall next to his predecessors (ВОЈВОДИЋ 1995: 266; ТОДИЋ, ЧАНАК-МЕДИЋ 2005: 443–444). Other images of Stefan Dečanski with stemma on his head are above the portal leading to the naos of the church. He is depicted facing his son Dušan, with raised hands in prayer, looking up at the image of Christ and receiving scrolls from a cherub, placed above (ВОЈВОДИЋ 1995: 280–282). The other image is located on the eastern wall of the narthex, in the Nemanjić family tree³¹, where he also receives a blessing from Christ (HAUSTEIN 1984: 73). A similar crown is depicted in the narthex of the Hilandar Monastery on Mount Athos and the Church of St. Nicholas Dabarski (1327/8; the painting was renewed in the 16th century) containing a ktetorial composition on the eastern part of the south wall of the Church (ПЕЈИЋ 2009). It represents King Stefan Dečanski and his son Dušan, holding the model of the church dressed in royal robes and with stemma on his head. The icon of St. Nicholas in Bari, with Dečanski and Dušan represented kneeling next to St. Nicholas with arms outstretched in prayer and with halos, depicts him wearing a similar crown (МИЉКОВИЋ 2007: 275–294, esp. 277–278, with literature).

On the other hand, the crown placed on the King's head in the Church of St. Stephen in the Monastery of Duljevo, dated to the mid-14th century, is rather specific. On the joint portrait of Dečanski and Dušan, placed on the southern wall in the western bay of the

³⁰ On the dating of the frescoes in Dečani, see СУБОТИЋ 1981: 124; КОРАЋ 1989: 287–295. On the symbolism of the portraits see БАБИЋ 1989: 280–284.

³¹ King Stefan Dečanski is also represented in the Nemanjić family tree, in the narthex of the Patriarchate of Peć, dated around 1330, see ВОЈВОДИЋ 1995: 294–297, with literature.

naos, there is an open crown of the Gothic type, which is in the form of a hoop decorated with lilies, from which hangs a typical Western ribbon. There are similar representations (ВОЈВОДИЋ 2002–2003: 143–161, esp. 152, fig. 5, fn. 50; ПОПОВИЋ 2021: 374–375) and seals, such as a hanging seal on his charter in the Hilandar Monastery no. 141/143 (ВОЈВОДИЋ 2000: 260–262, fn. 67, fig. 13; 2003: 154, fn. 72).

Even though both Western and Eastern types of crowns are depicted in portraits of King Stefan Dečanski in the Middle Ages, neither resembles the one from the Monastery of St. Petar Cetinjski in Cetinje. Therefore, it can be concluded that the Cetinje crown is not the one worn by King Stefan Dečanski. On the other hand, the question remains whether precious and semiprecious stones might have been taken from the original crown and placed on the crown in the Monastery of St. Petar Cetinjski in Cetinje. Further analyses are necessary to answer that question.

B. V.

The Scan of the Crown of King Stefan Uroš III Dečanski

For the analysis of the iconography and features of the crown of the Serbian king, it was decided to collect and capture the object in 3D. The three dimensions of the data capture (length, width, and height) would allow the researchers to share the object for the study of its properties and further analysis, once the item is not accessible for the study.

The method selected for the 3D acquisition of the crown in the Monastery of Cetinje was Structure from Motion and Multi-View Stereo (SfM–MVS). It uses overlapping images to generate a 3D dense point cloud (KUMAR, BOURKE 2018: 46) and a texturized surface. A key reason for using this selection was the accuracy of the method compared to laser or structured light techniques (SMITH, CARRIVICK, QUINCEY 2016: 250). Such a method enabled us to take a different range of spectral light sources on the crown: Long-Wave Ultraviolet (UVA) 320–420 nm and Visual Light Spectrum (VIS) 400–700 nm (Fig. 1). Furthermore, it provided flexibility and portability of the equipment simplifying transport due to its size—a normal DSLR camera (Canon 80D) and a modified DSLR camera (Canon Mark IV Full spectrum³²), as well as UV and VIS lamps. Digital cameras are equipped with high-quality sensors providing better image quality due to higher resolution and reducing image noise relative to more portable and smaller sensors (ZHANG et. al: 2019: 808).

The texture capture of the SfM–MVS method was also vital for our research, as it captures the best textures of all the scanning methods available, creating an accurate color pattern for orthophotos and texturized mesh (REMONDINO et. al. 2017: 592). An X-Rite ColorChecker was used for the colour and white balance of the images. In the case of the VIS spectrum, this technique produced the real colour of the textile, metal, and stones in the crown. Moreover, it enables further research in pigments, textile typology, and gems in the crown using UV and fluorescence images.

³² LDP LLC Maxmax.com <https://maxmax.com/maincamerapage/uv-vis-ir> accessed 15/11/2023

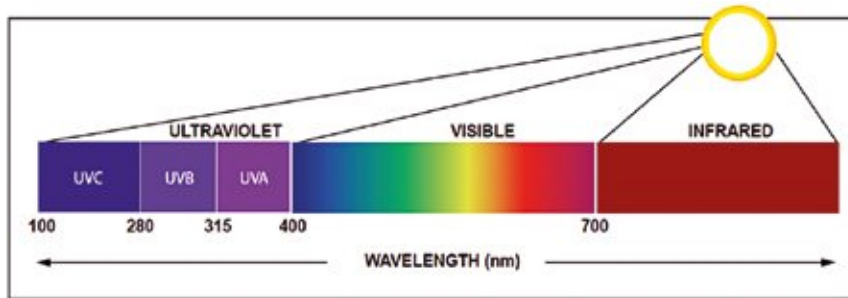


Fig. 1. The optical radiation and its electromagnetic spectrum.

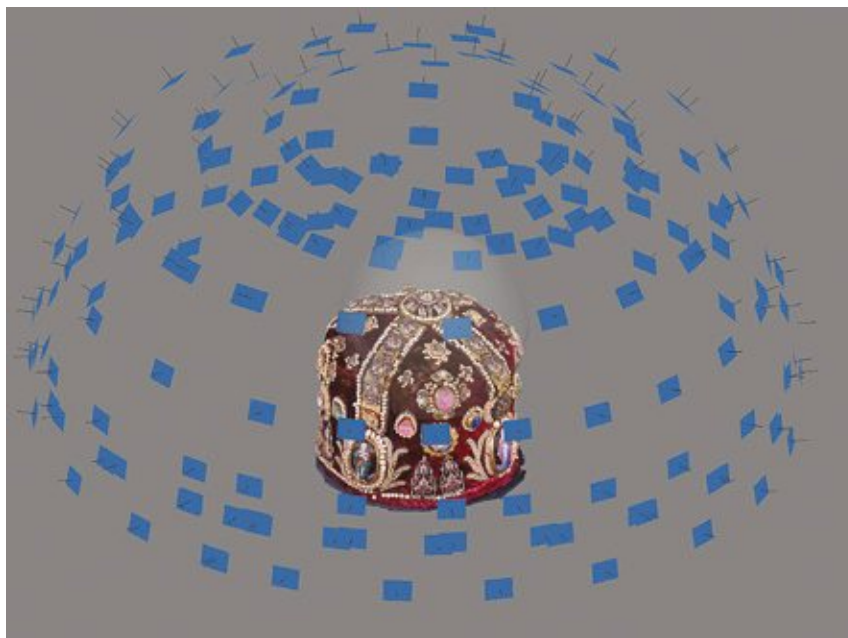


Fig. 2. SfM-MVS camera locations of the crown on Agisoft Metashape 2.0.1



Fig. 3. Frontal view of the crown in VIS UV and Fluorescence

The illumination of the object inside the museum was a key factor in the later data post-processing. A set of 3 LED lamps was placed around the crown to have constant light (MICHELETTI et. al. 2015: 4). When processing the data in SfM, pixel matching can fail or result in reduced accuracy in areas of low contrast or noise (MOSBRUCKER et. al. 2017: 973). The UV light was provided by two Alonefire H42UV down to 365 nm of the UVA spectrum. An Xnite330C UV filter from the MaxMax company was used to capture the UV spectrum of the torches within the modified DSLR. Light has many reflections, so the decision to take UVA and not some other part of the radiation spectrum was made to capture more data from the crown that only the VIS would give to the project. We wanted to highlight any modification/alteration on the crown surface and to check the quality and authenticity of the stones/gems used in its decoration.

SfM–MVS also proved to be a very reliable method to capture objects in 3D because of its accuracy and precision (when using markers) (VERHOEVEN et. al. 2012: 2061–2062). The SfM method relies on the location of these targets or ground control points for the scaling and rectification of the camera location (REMONDINO 2004: 218). Unfortunately for our project, the object is in a poor state of preservation. Therefore, we could not place any mark around it without altering the surface. However, we measured some points in the base of the crown and the distance in its exterior for the best accuracy possible. The result was a set of scales allowing for rectification and correction of any misalignments on the 3D point cloud. The inner part of the object was not captured due to the very fragile surface and the lack of appropriate set-up to turn it over without damaging any of the components of the crown.

The software Agisoft Metashape 1.8.4 was used for the processing of the capture data (Fig. 2). A total of 190 in VIS, 160 in UV, and 183 in UV fluorescence were taken. Three different models of the crown were created for the project: RGB values, UV black and white, and UV fluorescence (Fig. 3). The original colour values of the UV were a magenta colour but skipped in the analysis because it was not suitable information for our research. The primary focus was to give the researchers the real colour information of the crown to evaluate the originality of some crown features (metal parts, textile, and garnitures), as well as the possible precedence or origin of some of the precious stones highlighted with the UV fluorescence images.

The geometry accuracy of the models was tested with a point cloud-to-point cloud quantitative assessment of deviations of the three models created (NEPESCA, DE LUCA 2016: 349). A distance-to-distance (C2C) analysis was implemented in the free open-source software (FOSS) Cloudcompare, revealing that the three models are almost identical with no notable variations between them. Only minor changes in the area of the pearls and some stones (Fig. 4) were detected, possibly due to the reflection on the surface of these decorative elements. To have a more robust analysis between the models, another test was made in Cloudcompare using the M3C2 (Fig. 5). Several discussions reveal this approach as more complete to assess any disturbance on the 3D point cloud (BARNHART, CROSBY 2013: 2816–2818). In the case of our object, only minimal changes appeared again on the stones' surface

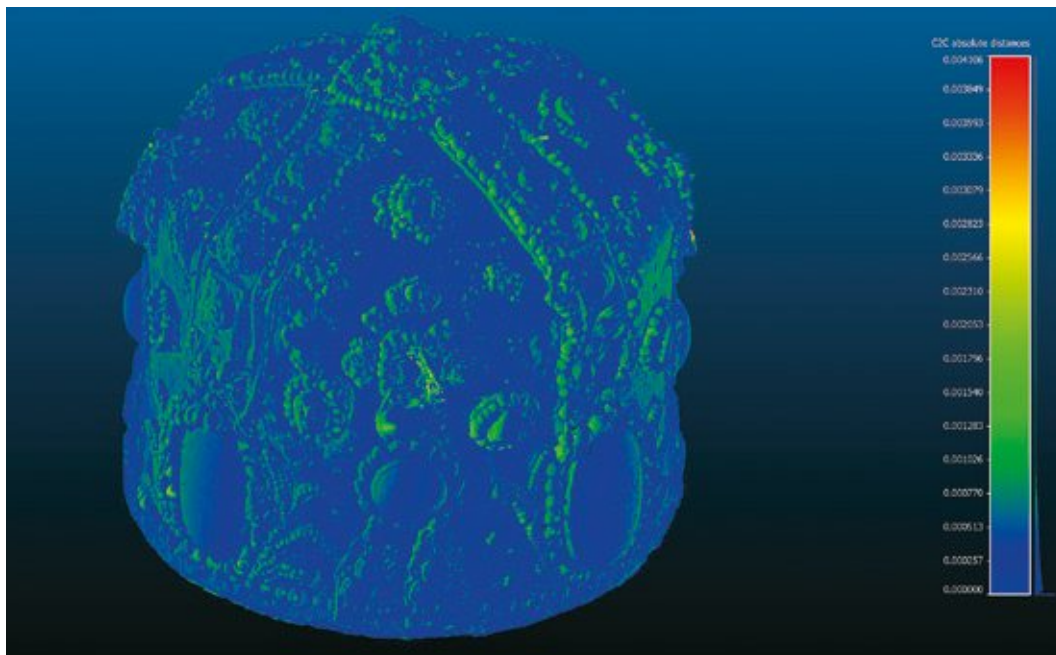


Fig. 4. C2C analysis in Cloudcompare. VIS spectrum Vs UV spectrum

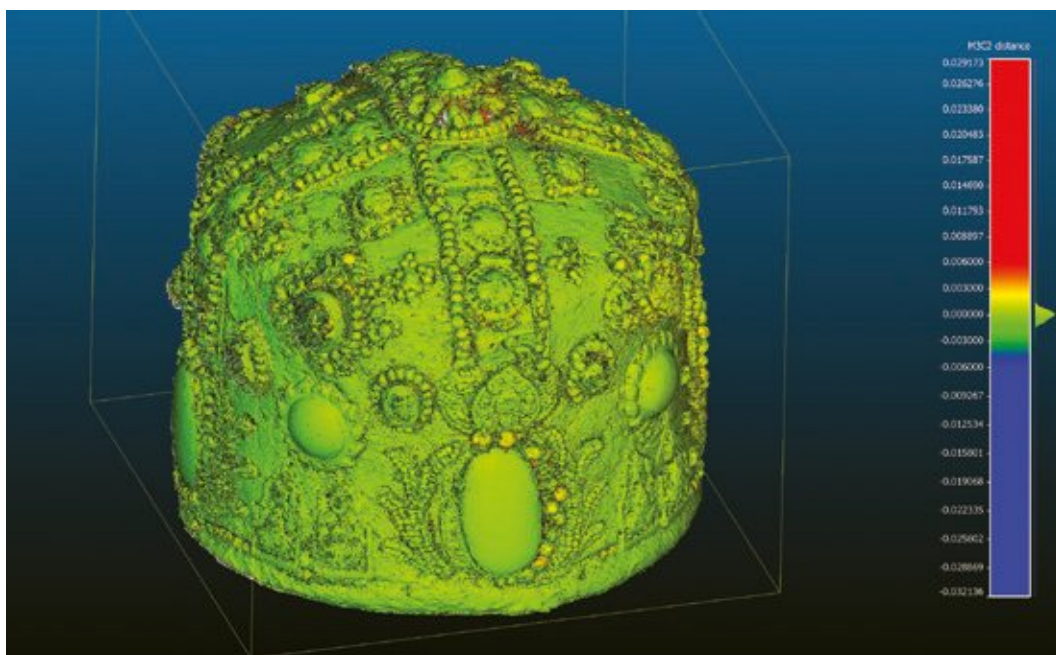


Fig. 5. M32C analysis in Cloudcompare. VIS spectrum Vs UV spectrum

and also the inner parts on the top center due to the lack of data from the data capture, which can probably be explained as an insufficient illumination of these narrow cavities between the rubies and the metal plank.

The analysis of the UVA results revealed interesting aspects of some of the stones used in the crown. The UV-fluorescence data gave valuable information on the quality and possible types of some of the precious stones. Fluorescence in minerals is caused by a wide range of particles, known as activators, present in their structure. Furthermore, this analysis can be complemented with the examination and conclusions of Prof. Tripps regarding the origin of some techniques and materials, further in the text.

Rubies

Regarding the quantity and color, the rubies are of the utmost importance in the crown. They form the cross from the top down to the four figures and small ornaments—pomegranate, flowers, and tulip-shaped filigree. They fluoresce under the UV variable but with a strong red to inert on UVA. They are determined to be real, not synthetic due to the work on their surface and the cuts analysed by Johannes Tripps (see below). The rubies possibly came from Siberia, since they fluoresce strongly under UVA. They could also be from Afghanistan or Tajikistan due to the very bright fluorescence under UVA. North Macedonia indeed produces rubies, but they fluoresce orange inside due to the type of corundum and embedded dolomitic marble when exposed to long-wave ultraviolet (JERŠEK et. al. 2021: 18).

Pearls

Pearls contain natural organic compounds of nacre. Depending on their quality and inclusions, they can differ in colours (depending on the origin) and under UV light can fluoresce in different ways (e. g. the Pearl of Cortez glows pink). A very light blue fluorescence can be observed in some white natural or light-yellow pearls (ELEN 2001: 121), like the ones in the crown. This seems to be the case in all the pearls within the crown, with some emitting a weaker fluoresce, possibly due to the inclusions in it.

Diamonds

Diamond is the only gem material that consists of only a single element, carbon atoms (TSAI, D'HAENENS-JOHANSSON 2021: 3413–3417). Blue is by far the most common fluorescence colour encountered in gem diamonds. The amount of boron present would make it glow from faintly to very strong. However, as some studies about diamonds reveal, the blue tone is the most common varying from intense light blue to darker blue but also many other colors like yellow and green under UVA (MOSES et. al. 1997: 247). In the case of the crown, no diamonds with these characteristics appear to have been used in the ornaments. However, some stones remind us of diamonds and do not glow. This could happen in

diamonds consisting only of carbon and nothing else. This observation comes only from the 3D model of the crown and not from an expert on the topic. This could only be determined with a close inspection and an analysis of some samples.

Other Stones in the Crown

The crown displays a very colorful scheme that goes beyond the gems mentioned before. The green stones in the ornaments could be emerald or jade. Both of these stones do not usually react under the UV fluorescence method. However, inclusions in these two can make them glow faintly.

Another colour in the crown is blue. Sapphires are also known to be used in these types of crowns/miters as Johannes Tripps suggested. In our case, the two blue colour stones fluoresce differently. The one above of Jesus Christ fluoresces dark red and the other on the top left of the Mother of God does not fluoresce. The red could come from chromium but the UV fluorescence texture of the model does not give further details on the composition.

M. H. C.

Iconographic Analysis of the Crown of King Stefan Uroš III Dečanski and Its Constituent Elements

The crown of King Stefan Uroš III Dečanski in Cetinje is considered to be the only remaining medieval crown from the Nemanjić Dynasty. A noteworthy feature is the shape of the crown together with its heterogeneous elements (POPOVIĆ 2023: 1–26). Furthermore, most of the semi-precious stones do not show the cabochon and table cuts typical of the period between 1321 and 1331 (Fig. 6). Besides, the gemstones are pierced and sewn on, like the rose quartz, which had no meaning in medieval material iconography, or mounted like the aquamarines in box settings, which are later variations.



Fig. 7. Left: close-up of the “Siberian Ruby”. Right: the crown of Saint Stefan Dečanski, c. 1840, with its older elements (Cetinje, Monastery of St. Petar Cetinjski)

Fig. 6. The crown of Saint Stefan Dečanski c. 1840, with its older elements (Cetinje, Monastery of St. Petar Cetinjski)

The brooch-like jewel centered over the forehead is an entirely modern piece (Fig. 7). A large rubellite sparkles in the center surrounded by eight smaller ones that form a wreath around it. Rubellites of this size and luminosity came from the Russian part of the Urals. During her reign, the Empress of Russia Catherine the Great (reigned 1762–1796) commissioned the exploration of Siberia and the so-called *Siberian Ruby* was discovered. Almost ruby red, this rubellite was a rarity coveted around the world (SCHUMANN 2014: 126; FERSMAN 1925: 22). In what context this brooch-like piece of jewellery had originally belonged, before it was attached to the crown, has not been determined so far.



Fig. 8. Miter, workshop of the Moscow Kremlin (?), second half of the 17th century (?). Reassembled and refined in the 19th century (Moscow, Kremlin, Treasury, Inv. N^o. TK-51)

The small facet cut of the rubellites, like the few aquamarines scattered over Saint Stefan's crown, was developed in the eighteenth century. Parallel to Saint Stefan's crown in Cetinje, there are corresponding cut stones under the trimming of the miter Inv. N^o. TK-51 of the Moscow Kremlin (Fig. 8); their enamels date from the end of the seventeenth century, but the stones and their arrangement are part of a nineteenth-century revision (МАРТЫНОВА 2002: 130–131, 175–176, Cat. N^o. 164). This is another reason to place the so-called crown of Saint Stefan Dečanski in the nineteenth century.

Similarly, the oval, black-ground enamels are in the technique of *peinture sur émail*, which was developed in the first third of the seventeenth century. One can identify the Virgin, John the Baptist, and Christ, ergo a Deësis. It is possible to identify the enamel of a Saint Peter, placed above the front side, as Saint Petar I Petrović Njegoš based on the resolution of the abbreviations in the inscription (Serbian Cyrillic: Петар I Петровић Његош; 1748–31 October 1830). In 1834, the Serbian Orthodox Church canonized him as Saint Peter of Cetinje (OSCHLIES 2012: cols. 870–882).

The pearl embroideries clearly refer to the four large enamels, which indicates that the arrangement of the appliqués, together with the pearl embroidery, is to be placed after 1834. Consequently, Lidija Stanković was absolutely right when she noted in 2014: “Unfortunately, the authenticity of the crown has been undermined in the past century by the addition of the medallions of modern Russian style” (STANKOVIĆ 2014: 7).

The black-ground enamels are, in my opinion, of Rostov origin because the mourning Virgin follows a type found on an enamelled crucifixion in the technique of a Rostov finit from the end of the eighteenth century (Fig. 9) (BORISSOWA 1995: 31, fig. 8).³³ Over the enamel of the Virgin is an appliqué in the form of a stylized tulip made in silver filigree.

³³ Dated in the third quarter of the 18th century, it was an appliqué for the decoration of a gospel cover.



Fig. 9. Left: close-up of Mourning Virgin on the crown of Saint Stefan Dečanski, c. 1840, with its older elements (Cetinje, Monastery of St. Petar Cetinjski) Right: enameled crucifixion, finift, Rostov, end of the 18th century (Rostov, Finifti Museum)



Fig. 10: Left: detail of the fragment of a clasp. Right: the crown of Saint Stefan Dečanski, c. 1840, with its older elements (Cetinje, Monastery of Saint Peter of Cetinje)



Fig. 11: Left: clasp, first half of the 19th century (London, Victoria and Albert Museum) Right: detail of the fragment of a clasp on the crown of Saint Stefan Dečanski, c.1840, with its older elements (Cetinje, Monastery of St. Petar Cetinjski)

Upon closer inspection, it turns out to be the fragment of a clasp, as I found a similar and complete one in the collections of the Victoria and Albert Museum in London, dating from the first half of the nineteenth century (Fig. 10). Throughout the lands of the former Ottoman Empire, from the north Balkans to the Caucasus, large and elaborate waist clasps were the most important items in a woman's dowry. There is a small number of these clasps of a basic shape. This one is shaped like stylized tulips, a favourite Ottoman motif. It was worn with the pointed part facing upwards and was fastened by a pin, which attached the right-hand piece to the rest of the clasp. The two chains, which join the pin to the clasp, hung down decoratively over the front of the clasp when it was fastened (Fig. 11) (VICTORIA and Albert Museum. *Clasp*, Inv. N°. 1528:1, 2–1888).³⁴

The piece of the Victoria and Albert Museum was described as Circassian when it was acquired in 1854, but it is more likely to have come from Turkey or the Balkans. The fine filigree and the use of enamel on the central bosses and the pendants on the chain suggest that it may have been made by a Greek or Armenian silversmith. The Armenians were famous for their silverwork in the nineteenth century. They were widely dispersed outside their homeland in the south Caucasus and produced jewellery, particularly filigree, in traditional styles for many other nationalities and faiths (VICTORIA and Albert Museum. *Clasp*, Inv. N°. 1528:1, 2–1888).³⁵ The Victoria and Albert Museum has a second one with three chains,

³⁴ <https://collections.vam.ac.uk/item/O79253/clasp-clasp-armenian/>.

³⁵ <https://collections.vam.ac.uk/item/O79253/clasp-clasp-armenian/>.

joining the pin to the clasp and hanging down decoratively over the front of the clasp when it was fastened. This one is dated between 1730 and 1754. Tulip-shaped filigree clasps were also worn in some of the Greek islands and the west coast of the Balkans but those are usually smaller and less decorative than Cypriot clasps (VICTORIA and Albert Museum. *Clasp*, Inv. N^o. 1531&PART-1888).³⁶

Cypriot clasps are part of the general Ottoman tradition but are often more sophisticated and decorative than those from elsewhere. The goldsmiths of Cyprus were famous for their filigree although they rarely hallmarked their work. This clasp was described as being from the eighteenth century when it was acquired and this may be true (VICTORIA and Albert Museum. *Clasp*, Inv. N^o. 1531&PART-1888).³⁷

The crown in Cetinje is a *mixtum compositum* of fragments, which explains why there is such a close resemblance to the red miter of the Historical Museum in Moscow (Государственный Исторический музей, GIM 77319 OK. 10821). The crown itself is from the beginning of the nineteenth century (h. 23.2 cm), whereas its appliquéés are from the seventeenth, eighteenth, and nineteenth centuries (Fig. 12) (SUETOVA 2009: 280, Cat. N^o. 19).

The crown of Saint Stefan Dečanski in Cetinje subsequently turns out not to be secular, but—just like its counterpart in Moscow—an Orthodox miter which, however, was shortened by two fingers' width at the lower band.

The entire miter in Moscow features seventeenth-century diamond-shaped appliquéés, bordered at the top and bottom by strings of pearls. In Cetinje, only the upper string of pearls is still present. Almost identical remnants of the diamond-shaped, àjour appliquéés can be found on the crown in Cetinje. Nowadays, they form parts of the trimming of the four clasps that adorn the crown. The latter is made of golden metal strips to which small àjour plaques are attached. They are either enamelled florally or display small table-cut red gemstones carmolized to produce pomegranates, typical of seventeenth-century Russian goldsmith work.

These pomegranates form a leitmotif of Russian miters of the seventeenth and eighteenth centuries. They are found among the treasures of the Kremlin, namely on the miter Inv. No. TK-51 (Fig. 8) (МАРТЫНОВА 2002: 130–131, 175–176, Cat. N^o. 164), as well as on the previously presented miter of the Moscow Historical Museum (Inv. No. GIM 7731 OK 108219),



Fig. 12: Left: the crown of Saint Stefan Dečanski, c. 1840, with its older elements (Cetinje, Monastery of St. Petar Cetinjski) Right: miter, Russia, beginning of the 19th century, composite ornaments of the 17th, 18th, and 19th centuries (Moscow, State Museum of History, GIM 77319 OK 10821)

³⁶ <https://collections.vam.ac.uk/item/O79247/clasp-clasp-unknown/>.

³⁷ <https://collections.vam.ac.uk/item/O79247/clasp-clasp-unknown/>.

which was redesigned at the beginning of the nineteenth century and whose decoration is composed of appliqués from the seventeenth and eighteenth centuries (Fig. 12) (SUETOVA 2009: 280, Cat. N^o. 19).

The third in the group is a miter (h. 20 cm) made in Moscow in the last quarter of the seventeenth century made of gold and silver. It is engraved, set with emeralds, rubies, sapphires, and pearls, and enamelled. It is also part of the collection of the Historical Museum in Moscow (*MASTERPIECES of Jewellery* 1985: Postcard N^o. 3).

Returning to the so-called crown of Saint Stefan Dečanski, we find the spikes decorated with table-cut gemstones, which sit in pairs between the enamel medallions depicting Saint Peter of Cetinje, Christ, the Virgin, and Saint John. They glitter in the same place as on the red miter mentioned at the beginning of this part of the article—the one at the Historical Museum of Moscow from the beginning of the nineteenth century with appliqués from the seventeenth, eighteenth, and nineteenth centuries (Fig. 12) (SUETOVA 2009: 280, Cat. N^o. 19).³⁸ Such spikes as decorative elements are typical for Moscow goldsmith works of the seventeenth century. They are found as ferrules on the edges of the book covers of the Gospels of 1678 in the National Museum of the Kremlin in Moscow. In pairs or threes, they are set here between the gusseted figures of the Evangelists (PISARSKAJA, PLATONOVA et al. 1974: 102–106; МАРТЫНОВА 2002: 130–131, N^o. 122). On the miter, which Tsar Mikhail Fedorovich donated to the Cathedral of the Assumption of the Virgin Mary in Rostov in 1634, the semi-precious stones flash below the crown medallion between the clasps of the calotte (МАРТЫНОВА 2002: 78–79, Cat. N^o. 45; PISSARSKAJA, PLATONOVA et al. 1974: 74–77).

J. T.

Conclusion

Based on this thorough investigation, it can be concluded that the crown kept in the Treasury of the Monastery of St. Petar Cetinjski in Cetinje, does not, in any way, correspond to the crown of King Stefan Dečanski as presented on the frescoes, icons, coins, or seals. On the other hand, it is important to note that, thanks to the remaining depictions of different types of crowns, we can acknowledge the influences of both East and West present in the Serbian cultural and political milieu. The ambiguity of the crown, which is at the same time a relic and a ruler's insignia, is explained by the unity of the ruler's sign and its religious essence (hence the name *Sacra/Sancta Corona*).

The 3D model of the crown facilitates further iconographical and ornamental analysis. The accuracy of the model allows us to take measurements and compare them with other samples when needed, as Johannes Tripps did in his examination of the crown. The accuracy of the 3D models (VIS, UVA and UV fluorescence) has been tested and less than 1 mm has been found between the digital copies of the crown. The UV fluorescence model helped analyse the possible typology and quality of the stones used to elaborate the crown. Most of

³⁸ Height 23,2 cm; Государственный Исторический музей, ГИМ 77319 ОК. 10821.

them are probably real, as their quality under the UV reveals. Unfortunately, an absolute verification cannot be made, unless a gemological analysis with samples is undertaken.

With further iconographical analysis, it can be concluded that the base of the crown in Cetinje is a miter of which the present appearance, with its arrangement of pearl embroidery, stones and enamels, is a composition from the period after 1834, the year of the canonization of St. Petar Cetinjski. The rubellites of the jewel centered over the forehead have most likely been added the second half of the eighteenth century because of their facet cut and also because of the discovery of their occurrence in Siberia during the development of this area under Catherine the Great. Only the à jour-worked appliquéés, decorated with rubies, are believed to have been made in Moscow around 1700, as they have their counterparts in the Moscow goldsmith's art of the second half of the seventeenth century and the beginning of the eighteenth century.

Considering the unequivocal conclusion of our historical and artistic analysis, as well as the precise analysis of VIS, UVA and UV fluorescence, we must bear in mind that the crown continues to function as an important relic that played a key role in the formation and legalization of the power of King Nikola I and whose meaning will remain embedded in popular belief as the true original crown of King Stefan Dečanski. Therefore, in the eyes of believers and the state, the question of authenticity is not disputed or (re)considered. However, the questions of when and where this crown was attributed to Stefan Dečanski, as well as when this narrative was created, remain. Consequently, we are looking forward to future research that will shed light on this complex issue.

BIBLIOGRAPHY

- BACCI, Michele (ed.). *Meanings and Functions of the Ruler's Image in the Mediterranean World (11th – 15th Centuries)*. Brill, 2022.
- BARNHART, Theodore, Benjamin T. Crosby. "Comparing Two Methods of Surface Change Detection on an Evolving Thermokarst Using High-Temporal-Frequency Terrestrial Laser Scanning, Selawik River, Alaska." *Remote Sensing* 5(6) (2013): 2813–2837.
- BORISSOWA, Walentina Ignatjewna. *Rostower Email (= Meisterwerke der Volkskunst von Rußland)*. Moscow: Interbook, 1995.
- DONEUS, Michael, Geert J. Verhoeven, Martin Fera, Christian Briese, Matthias Kucera, Wolfgang Neubauer. "From deposit to point cloud – a study of low-cost computer vision approaches for the straightforward documentation of archaeological excavations." *Geoinformatics FCE CTU 6 (XXIIIrd International CIPA Symposium, Prague 12–16 September 2011)*: 81–88.
- ELEN, Shane. "Spectral reflectance and fluorescence characteristics of natural-color and heat-treated 'golden' South Sea cultured pearls." *Gems & Gemology* vol. 37, no. 2 (2001): 121.
- FERSMAN, Aleksandr Evgenevich. *Russia's Treasure of Diamonds and Precious Stones*. Moscow: The People's Commissariat of Finances, 1925.
- HAUSTEIN, Eva. *Der Nemanjiden Stammbaum. Studies zur mittelalterlichen serbischen Herrscherikonographie*, Dissertation. Universität Bonn, 1984.

- JERŠEK, Miha, Gligor Jovanovski, Blazo Boev, Petre Makreski. "Intriguing minerals: corundum in the world of rubies and sapphires with special attention to Macedonian rubies." *ChemTexts* 7(3) (2021): 7–19.
- KUMAR, A. Verma, Mary C. Bourke. "A method based on structure-from-motion photogrammetry to generate sub-millimetre-resolution digital elevation models for investigating rock breakdown features." *Earth Surface Dynamics* 7 (2018): 1–34.
- MARJANOVIĆ-DUŠANIĆ, Smilja. *Vladarske insignije i državna simbolika u Srbiji od XIII do XV veka*. Belgrade, 1994.
- MARJANOVIĆ-DUŠANIĆ, Smilja. "The Ruler's Insignia in the Structural Evolution of Medieval Serbia." *Majestas* 7 (1999): 55–74.
- MARJANOVIĆ-DUŠANIĆ, Smilja, Dragan Vojvodić. "The Model of Empire – the Idea and Image of Authority in Serbia (1299– 1371)." In: POPOVIĆ, Danica, Dragan Vojvodić (eds.). *Sacral Art of the Serbian Lands in the Middle Ages*. Belgrade, 2016, 299–315.
- MASTERPIECES of Jewelry. N. Platonova (comp.) The History Museum Moscow. Set of 16 postcards. Leningrad: Aurora Art Publishers, 1985.
- MICHELETTI, Nathan, Jim H. Chandler, Stuart N. Lane. "Structure from motion (SfM) photogrammetry." In: CLARKE, L. E., J. M. Nield (eds.). *Geomorphological Techniques* (online edition) London: British Society for Geomorphology. 2015. ISSN: 2047-0371, Chap. 2, Sec. 2.2. https://repository.lboro.ac.uk/articles/journal_contribution/Structure_from_motion_SfM_photogrammetry/9457355 accessed 20/11/2023:p.4
- MOSBRUCKER, Adam R., Jon J. Major, Kurt R. Spicer, John Pitlick. "Camera system considerations for geomorphic applications of SfM photogrammetry." *Earth Surface Processes and Landforms* 42 (2017): 969–986.
- MOSES, Thomas M., Ilene M. Reinitz, Mary L. Johnson, John M. King, James E. Shigley. "A contribution to understanding the effect of blue fluorescence on the appearance of diamonds." *Gems & Gemology* vol. 33, no. 4 (1997): 244–259.
- NEPESCA, Romina, Livio De Luca. Analysis, thematic maps and data mining from point cloud to ontology for software development." *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. XLI-B5, XXIII ISPRS Congress, 12–19 July 2016. Prague, Czech Republic, 347–354.
- NIKČEVIĆ, Radomir (ur.). *Nikola I Petrović Njegoš. Govori*. Cetinje–Podgorica, 2009.
- OSCHLIES, Wolf. *Njegos, Petar I. Petrovic*. Biographisch-Bibliographisches Kirchenlexikon, vol. 33. Nordhausen: Bautz, 2012.
- PISARSKAJA, Ljudmila V. "Les émaux de l'Ancienne Russie, XI^e-XVII^e." *Drevnerusskaja emal' XI–XVII*. Moscow: National Museum of the Kremlin, 1974.
- REMONDINO, Fabio, Alberto Guarnieri, Antonio Vettore. "3D modeling of Close-Range Objects: Photogrammetry or Laser Scanning." *Proceedings of SPIE – The International Society for Optical Engineering* 5665 (2004): 216–225.
- REMONDINO, Fabio, Erica Nocerino, Isabella Toschi, Fabio Menna. "A critical review of automated photogrammetric processing of large datasets." *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* vol. XLII-2/W5. 26th International CIPA Symposium 2017, 28 August–01 September, Ottawa, Canada, 591–599.
- SCHUMANN, Walter. *Edelsteine und Schmucksteine: Alle Arten und Varietäten-1900 Einzelstücke*. 16th revised ed. München: BLV Verlag, 2014.

- SMITH, W. Mark, Jonathan L. Carrivick, Duncan Quincey. "Structure from motion photogrammetry in physical geography." *Progress in Physical Geography: Earth and Environment* 40/2 (2016): 247–275.
- SPATHARAKIS, Iohannis. *The Portrait in Byzantine Illuminated Manuscripts*. Brill Leiden, 1976.
- STANKOVIĆ, Lidija. *Ceremonijalni kostim srpskih srednjovekovnih vladarki*. 2014. <<https://www.slideshare.net/teorijaforme/ceremonijalni-kostim-srpskih-srednjovekovnih-vladarki>> 04. 03. 2023.
- STUDER-KARLEN, Manuela. "The Emperor's Image in Byzantium, Perceptions and Functions." In: BACCI, Michele (ed.). *Meanings and Functions of the Ruler's Image in the Mediterranean World (11th – 15th Centuries)*. Brill, 2022, 134–171.
- SUETOVA, Nina. "Les textiles religieux." In: DE MONTCLOS, Brigitte, Ludmila P. Tarasenko (ed.). *Moscou—Splendeurs des Romanov: Exposition au Grimaldi Forum Monaco*. Milan: Skira, 2009. *The Treasury of Cetinje Monastery*. Cetinje: "AP Print" – Podgorica, 2013.
- TSAI, Tsung-Han, Ulrika F. S. D'haenens-Johansson. "Rapid gemstone screening and identification using fluorescence spectroscopy." *Applied Optics* vol. 60, no. 12/20 (2021): 3412–3421.
- VELMANS, Tania. "Le portrait dans l'art des Paléologues." In: *Art et société à Byzance sous les Paléologues*. Venise, 1971, 99–148.
- VERHOEVEN, Geert J., Michael Doneus, Christian Briese, Frank Vermeulen. "Mapping by matching: a computer vision-based approach to fast and accurate georeferencing of archaeological aerial photographs." *Journal of Archaeological Science* 39/7 (2012): 2060–2070.
- VICTORIA and Albert Museum. *Clasp*, Inv. No. 1528:1, 2-1888. <<https://collections.vam.ac.uk/item/O79247/clasp-clasp-unknown/>> 07. 03. 2023.
- VICTORIA and Albert Museum. *Clasp*, Inv. No. 1531&PART-1888. <<https://collections.vam.ac.uk/item/O79247/clasp-clasp-unknown/>> 07. 03. 2023.
- VOJVODIĆ, Dragan. "Imperial Insignia and Iconography of Independent Dignitaries and Princes in Late Byzantium and Medieval Serbia." *ERFORSCHEN – ERKENNEN – WEITERGEBEN, Gewidmet dem Gedenken an Helmut Buschhausen, Buschhausen Erforschen Erkennen Weitergeben*. Lohmar, 2021, 235–348.
- WILKINSON, Maxwell, Robin R. Jones, Christopher E. Woods, Sébastien Gilment, Ken J. W. McCaffrey, Sotiris Kokkalas, Jing J. Long. "A comparison of terrestrial laser scanning and structure-from-motion photogrammetry as methods for digital outcrop acquisition." *Geosphere* 12/6 (2016): 1865–1880.
- ZHANG, He, Emilien Aldana-Jague, François Clapuyt, Florian Wilken, Veerle Vanacker, Kristof Van Oost. "Evaluating the potential of post-processing kinematic (PPK) georeferencing for UAV-based structure from motion (SfM) photogrammetry and surface change detection." *Earth Surface Dynamics* 7 (2019): 807–827.
- БАБИЋ, Гордана. "Les portraits de Dečani representant ensemble Dečanski et Dušan." У: ЂУРИЋ, Војислав Ј. (ур.). *Дечани и византијска уметност средином XIV века*. Београд (ВАВИЋ, Gordana. "Les portraits de Dečani representant ensemble Dečanski et Dušan." У: ЂУРИЋ, Vojslav J. (ur.). *Dečani i vizantijska umetnost sredinom XIV veka*. Beograd), 1989, 280–284.
- БЛАГОЈЕВИЋ, Милош. „Идеја и стварност Душановог царавања." У: *Историја српског народа I*. Београд (БЛАГОЈЕВИЋ. Miloš. „Ideja i stvarnost Dušanovog carevanja." У: *Istorija srpskog naroda I*. Beograd), 1981, 524–540.

- ВОЈВОДИЋ, Драган. „Портрети владара, црквених достојанственика и племића у наосу и припрати.” У: ЂУРИЋ, Војислав Ј. (ур.). *Зидно сликарство манастира Дечана. Грађа и студије*. Београд (VOJVODIĆ, Dragan. „Portreti vladara, crkvenih dostojanstvenika i plemića u naosu i priprati.” У: ĐURIĆ, Vojislav J. (ur.). *Zidno slikarstvo manastira Dečana. Građa i studije*. Beograd), 1995, 265–299.
- ВОЈВОДИЋ, Драган. „Српски владарски портрети у манастиру Дуљеви.” *Зограф* (VOJVODIĆ, Dragan. „Srpski vladarski portreti u manastiru Duljevu.” *Zograf*) 29 (2002–2003): 143–160.
- ВОЈВОДИЋ, Драган. „Од хоризонталне ка вертикалној генеалошкој слици Немањића.” *Зборник радова Византолошког института* (VOJVODIĆ, Dragan. „Od horizontalne ka vertikalnoj genealoškoj slici Nemanjića.” *Zbornik radova Vizantološkog instituta*) XLIV (2007): 295–312.
- ВОЈВОДИЋ, Драган. „Слика световне и духовне власти у српској средњовековној уметности.” *Зборник Матице српске за ликовне уметности* (VOJVODIĆ, Dragan. „Slika svetovne i duhovne vlasti u srpskoj srednjovekovnoj umetnosti.” *Zbornik Matice srpske za likovne umetnosti*) 38 (2010): 35–78.
- ВОЈВОДИЋ, Драган. „Ка царском достојанству краљевске власти. Владарске инсигније и идеологија у доба првих Немањића.” У: МАКСИМОВИЋ, Љубомир, Срђан Пириватрић (ур.). *Краљевство и архиепископија у српским и поморским земљама Немањића*. Београд (VOJVODIĆ, Dragan. „Ka carskom dostojanstvu kraljevske vlasti. Vladarske insignije i ideologija u doba prvih Nemanjića.” У: MAXSIMOVIĆ, Ljubomir, Srđan Pirivatric (ur.). *Kraljevstvo i arhi-episkopija u srpskim i pomorskim zemljama Nemanjića*. Beograd), 2019, 315–354.
- ДАВИДОВ ТЕМЕРИНСКИ, Александра. *Бојородица Љевишка у Призрену*. Београд (DAVIDOV TEMERINSKI, Aleksandra. *Bogorodica Ljeviška u Prizrenu*. Beograd), 2017.
- ЂОРЂЕВИЋ, Иван М. „Две молитве краља Стефана Дечанског пре битке на Велбужду и њихов одјек у уметности.” *Зборник за ликовне уметности Матице српске* (ЂОРЂЕВИЋ, Ivan M. „Dve molitve kralja Stefana Dečanskog pre bitke na Velbuždu i njihov odjek u umetnosti.” *Zbornik za likovne umetnosti Matice srpske*) 15 (1979): 135–150.
- ЂОРЂЕВИЋ, Иван М. „Представа Стефана Дечанског уз олтарску преграду у Дечанима.” *Саопштења* (ЂОРЂЕВИЋ, Ivan M. „Predstava Stefana Dečanskog uz oltarsku pregradu u Dečanima.” *Saopštenja*) 15 (1983): 35–43.
- ЂУРИЋ, Војислав Ј. *Икона светио краља Стефана Дечанског*. Београд (ĐURIĆ, Vojislav J. *Ikona svetog kralja Stefana Dečanskog*. Beograd), 1985.
- ЂУРИЋ, Војислав Ј. (ур.). *Дечани и византијска уметност средином XIV века*. Београд (ĐURIĆ, Vojislav J. (ur.). *Dečani i vizantijska umetnost sredinom XIV veka*. Beograd), 1989.
- ЂУРИЋ, Војислав Ј., Сима Ћирковић, Војислав Кораћ. *Пећка патријаршија*. Београд (ĐURIĆ, Vojislav J., Sima Ćirković, Vojislav Korać. *Pečka patrijaršija*. Beograd), 1990.
- ЖИВКОВИЋ, Бранислав. *Бојородица Љевишка. Цртежи фресака*. Београд (ŽIVKOVIĆ, Branislav. *Bogorodica Ljeviška. Crteži fresaka*. Beograd), 1991.
- ЗАДУЖБИНЕ Косова и Метохије. *Историјско, духовно и културно наслеђе српског народа*. Београд–Призрен (ZADUŽBINE Kosova i Metohije. *Istorijsko, duhovno i kulturno nasleđe srpskog naroda*. Beograd–Prizren), 1987.
- КОРАЋ, Душан. „Канонизација Стефана Дечанског и промене на владарским портретима у Дечанима.” У: ЂУРИЋ, Војислав Ј. (ур.). *Дечани и византијска уметност средином XIV века*. Београд (KORAĆ, Dušan. „Kanonizacija Stefana Dečanskog i promene na vladarskim portretima u Dečanima.” У: ĐURIĆ, Vojislav J. (ur.). *Dečani i vizantijska umetnost sredinom XIV veka*. Beograd), 1989, 287–295.

- МАРЈАНОВИЋ-ДУШАНИЋ, Смиља. *Владарска идеологија Немњића. Дипломатичка студија*. Београд (MARJANOVIĆ-DUŠANIĆ, Smilja. *Vladarska ideologija Nemanjića. Diplomatička studija*. Beograd), 1997.
- МАРЈАНОВИЋ-ДУШАНИЋ, Смиља. *Свети краљ. Култ Стефана Дечанског*. Београд (MARJANOVIĆ-DUŠANIĆ, Smilja. *Sveti kralj. Kult Stefana Dečanskog*. Beograd), 2007.
- МАРТЫНОВА, М. В. [МАРТУНОВА, М. В.]. *Московская эмаль XV–XVII веков*. Moscow: Moscow Kremlin Museums, 2002.
- ПАНИЋ, Драга, Гордана Бабић. *Бојородица Лјевишка*. Београд (PANIĆ, Draga, Gordana Babić. *Bogorodica Ljeviška*. Beograd), 1975.
- ПИРИВАТРИЋ, Срђан. „Улазак Стефана Душана у Царство.” *Зборник радова Византолошког института* (PIRIVATRIĆ, Srđan. „Ulazak Stefana Dušana u Carstvo.” *Zbornik radova Vizantološkog instituta*) 44/2 (2007): 381–409.
- ПОПОВИЋ, Бојан. *Српска средњовековна владарска и властеоска одећа*. Београд (POPOVIĆ, Bojan. *Srpska srednjovekovna vladarska i vlasteoska odeća*. Beograd), 2020.
- ПОПОВИЋ, Бојан. *Митра дванаест апостола према дневницима Михаила Валтровића*. Београд (POPOVIĆ, Bojan. *Mitra dvanaest apostola prema dnevnicima Mihaila Valtrovića*. Beograd), 2023. (у штампи/forthcoming)
- ПОПОВИЋ, Даница. „Свети краљ Стефан Дечански.” У: Поповић, Даница. *Под окриљем светлости. Култ светих владара и реликвија у средњовековној Србији*. Београд (POPOVIĆ, Danica. „Sveti kralj Stefan Dečanski.” У: POPOVIĆ, Danica. *Pod okriljem svetosti. Kult svetih vladara i relikvija u srednjovekovnoj Srbiji*, Beograd), 2006, 143–183.
- ПУРКОВИЋ, Миодраг. *Српски патријарси средњега века*. Диселдорф (PURKOVIĆ, Miodrag. *Srpski patrijarsi srednjega века*. Diseldorf), 1976.
- РАДОЈЧИЋ, Светозар. *Портрети српских владара у средњем веку*. Скопље (RAĐOJČIĆ, Svetozar. *Portreti srpskih vladara u srednjem веку*. Skoplje), 1934.
- РАНЂИЋ, Миливој (ур.). *Свети краљ Милутићин. Владар на раскршћима светова*. Београд (RANĐIĆ, Milivoj (ur.). *Sveti kralj Milutin. Vladar na raskršćima svetova*. Beograd), 2022.
- СОЛОВЈЕВ, Александар В. „Када је Дечански проглашен за свеца?” *Богословље* год. IV, св. 4 (SOLOVJEV, Aleksandar V. „Kada je Dečanski proglašen za sveca?” *Bogoslovlje* год. IV, sv. 4) (1924): 284–295.
- СУБОТИЋ, Гојко. „Прилог хронологији дечанског зидног сликарства.” *Зборник радова Византолошког института* (SUBOVIĆ, Gojko. „Prilog hronologiji dečanskog zidnog slikarstva.” *Zbornik radova Vizantološkog instituta*) 20 (1981): 111–138.
- ТОДИЋ, Бранислав. *Српско сликарство у доба краља Милутићина*. Београд (TODIĆ, Branislav. *Srpsko slikarstvo u doba kralja Milutina*. Beograd), 1998.
- ТОДИЋ, Бранислав, Милка Чанак-Медић. *Манастир Дечани*. Београд: Центар за очување наслеђа Косова и Метохије – MNEMOSYNE (TODIĆ, Branislav, Milka Čanak-Medić. *Manastir Dečani*. Beograd: Centar za očuvanje nasleđa Kosova i Metohije – MNEMOSYNE), 2005.
- ФЕРЈАНЧИЋ, Божидар. „Освајачка политика краља Душана.” У: *Историја српског народа I*. Београд (FERJANČIĆ, Božidar. „Osvajačka politika kralja Dušana.” У: *Istorija srpskog naroda I*. Beograd), 1981, 511–523.
- ФЕРЈАНЧИЋ, Божидар. *Византијски и српски Сер у XIV столећу*. Београд (FERJANČIĆ, Božidar. *Vizantijski i srpski Ser u XIV stoleću*. Beograd), 1994.

- ЦАМБЛАК, Григорије. „Служба светом краљу Стефану Дечанском.” У: *Србљак. Службе, канони, акатистици*. Књига друга. Београд (САМБЛАК. Grigorije. „Služba svetom kralju Stefanu Dečanskom.” У: *Srbljak. Službe, kanoni, akatisti*. Књига друга. Београд), 1970, 306–349.
- ЦАМБЛАК, Григорије. „Житије Стефана Дечанског.” У: Богдановић, Димитрије et al. (ур.). *Григорије Цамблак, Књижевни рад у Србији*. Београд (САМБЛАК. Grigorije. „Žitije Stefana Dečanskog.” У: BOGDANOVIĆ, Dimitrije et al. (ur.). *Grigorije Camblak, Književni rad u Srbiji*. Београд), 1989, 49–87.
- ЧАНАК-МЕДИЋ, Милка, Бранислав Тодић. *Бојородица Љевишка*. Нови Сад (ЏАНАК-МЕДИЋ, Milka, Branislav Todić. *Bogorodica Ljeviška*. Novi Sad), 2015.

Јоханес Трипс, Бранка Ч. Вранешевић, Моисес Хернандез Кордеро, Михаило Ст. Поповић
КА ЦАРСКОМ ДОСТОЈАНСТВУ: ПРИЛОГ ПРОУЧАВАЊУ
ЦАРСКЕ КРУНЕ КРАЉА СТЕФАНА УРОША III ДЕЧАНСКОГ
У ЦЕТИЊСКОМ МАНАСТИРУ

Резиме

Круна краља Стефана Уроша III Дечанског, која се данас чува у Ризници Цетињског манастира и која је служила као главна регалија приликом крунисања књаза, будућег краља, Николе I Петровића Његоша у Црној Гори, до данас није у целости проучавана и, чини се, није привлачила у довољној мери пажњу истраживача. У овом раду, користећи различите методолошке приступе из домена историје, историје уметности и уз коришћење Structure from Motion Multi-View Stereo (SfM–MVS), приступили смо обради и анализи круне како бисмо разумели њену употребу и значај, одредили њену евентуалну аутентичност спрам средњовековне круне краља Стефана Дечанског, како је представљена у уметности, те место настанка и, уколико је могуће, датовали. Пажљивије испитивање њеног облика и занатских техника открива да се ради о техници емајла, као и употреби драгог камења и бисерног веза која датира из XVII, XVIII и XIX века, и као таква састављена је око 1840. године.

Кључне речи: круна Стефана Дечанског, крунисање Николе I Петровића Његоша, српска средњовековна уметност, Structure from Motion Multi-View Stereo, вез, емајл.