

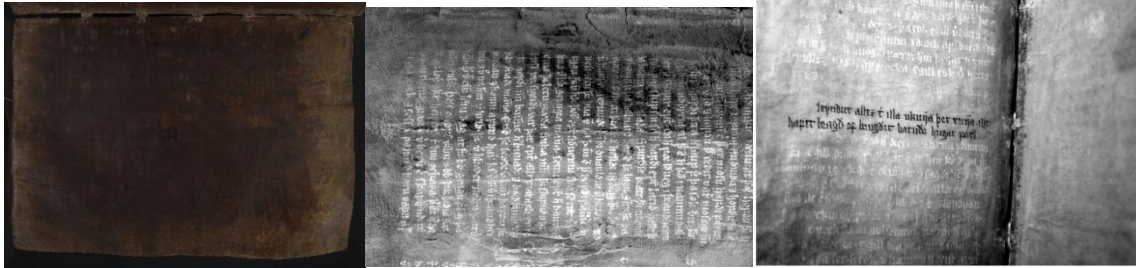
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Abstract:

Multispectral imaging — The hidden information in the Book of Sagas

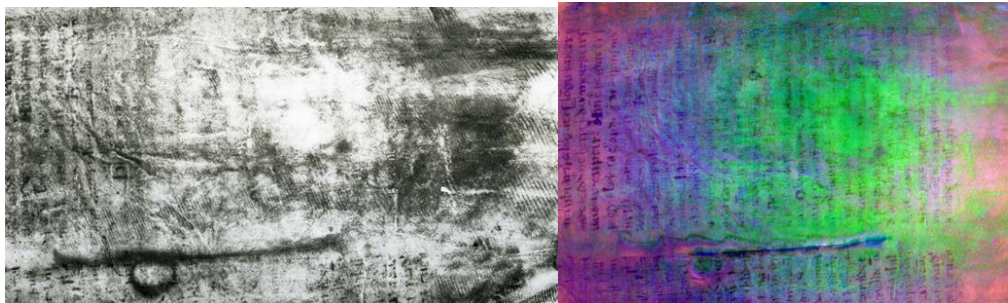
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Möðruvallabók 'book from *Möðruvellir*' **M** is the main source of the Sagas of Icelanders, for some it is the only source. Multispectral imaging reveals information that the naked eye cannot see. The following images demonstrate this. They were obtained with a modified digital camera to produce texts that have been used in published scholarly articles and a PhD thesis. [This presentation describes the technical aspects of the work.](#)



Page 69v in **M** is fully unreadable, but the text is revealed in infrared (IR) (white on black) [1]. On the right is an IR photo of page 77v in **M** that had empty spaces for stanzas that were filled in by another hand. It was believed to be contemporary, but IR shows it to be with a different ink (black) [2].

IR photography is not believed to be useful for medieval European manuscripts, but the pictures above prove otherwise. They were obtained using a 950nm IR filter with the IR blocker removed from the camera, normal lighting. I discuss why this worked and where it is likely to work.



Page 99v in **M** is unreadable. On left is its worst part in UV fluorescence. On right is a composite from a PCA analysis.

For page 99v, IR photography and UV fluorescence do not produce anything readable, but by splitting the UV picture (photo taken without UV blocker) into three images and with the IR image as the fourth, and by using Principal Component Analysis, most of the page can be read anew. Pictures in nine different visual wavelengths were also obtained (using led illumination), but they did not improve the PCA analysis. The talk will demonstrate the above and discuss why the PCA can be so powerful.

Future work will, hopefully, lead to all the pages of **M** and other important manuscript becoming available in hyperspectral editions, for scientist to test their processing theories and for scholars to verify old readings and produce new ones.

[1] 2013. Þorgeir Sigurðsson & al. Ofan í sortann, Egils saga í Möðruvallabók. *Gripla* 24, pages 93–120.

[2] 2018. Þorgeir Sigurðsson. Hví skal eigi drepa Egil? *Són* 16, pages 13–33.

[3] 2019. Þorgeir Sigurðsson. *The unreadable poem of Arinbjörn*. PhD thesis from the University of Iceland.