



Wednesday 27th April 2022

4 pm (Rome time) - Aula Ruffini DST

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[Link webinar](#)

Benchtop μ XRF: An exciting tool for anatomical studies of fossil bony fishes



MUSEUM
SALLING



Japetus Steenstrups Legat

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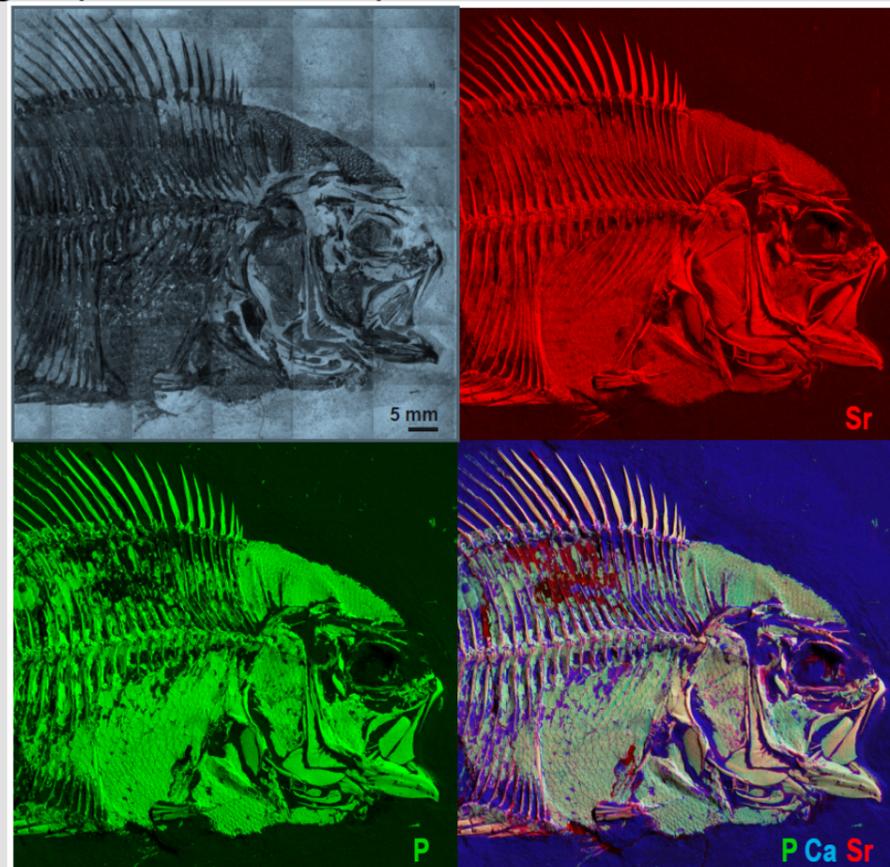
NATURAL
HISTORY MUSEUM
OF DENMARK

UNIVERSITY OF
COPENHAGEN

Ane Elise Schrøder (Industrial PhD student)

Natural History Museum of Denmark and Museum Mors

Micro-X-ray fluorescence (μ XRF) is becoming a popular tool in different fields of Earth sciences, although the full potential of this technology within palaeontology remains to be explored. In paleoichthyology, anatomical descriptions necessary for taxonomic identification of fossil fishes requires specialist knowledge and often still relies solely on traditional studies using a conventional stereomicroscope. The earliest Eocene (Ypresian) Fur Formation of northwestern Jutland, Denmark, contains a wealth of exquisitely preserved, often complete articulated fish fossils. Bony fishes are one of the most well-represented groups of macrofossils of the Fur Formation in terms of both abundance and diversity. Nevertheless, it is also the fossil group with the least publications from the formation. Only a few taxonomic studies have been realized to date and none of these covers the most abundant fish species from the Fur Formation. Until now, the Fur Formation has been appreciated primarily within Denmark when, indeed, the palaeontological and geobiological value is of global interest. The quality of preservation, sedimentary matrix, and type of fossil preparation (if any) are all factors affecting the presence and accessibility of meristic, morphometric and anatomical features useful for systematic purposes. This is the first comprehensive study, which uses non-destructive benchtop μ XRF-element mapping as a novel scientific tool to expose fossil fish anatomical features, which are commonly not accessible by means of traditional studies.



Mosaic image and K α element distribution maps of the anterior part of NHMD-869392, representing a new genus and species (Polymixiidae). The scales are discernable on the fossil specimen, but the squamation pattern is greatly enhanced in the P map. Other anatomical features not detectable on the fossil or in the P map are revealed in the Sr and combined maps.

The Speaker

Ane Elise Schrøder is a biologist and palaeontologist. During her bachelor- and master studies, she aimed to couple biology and geology in a broader context with the main foci being on palaeontology, taxonomy and palaeoecology of brachiopod faunas from Late Cretaceous (Campanian and Maastrichtian) and Paleogene (Danian) of Denmark and Sweden. After graduating with her master's degree in 2013 from Copenhagen University, she has been employed at a number of research institutions in Denmark. Currently, she is employed as an industrial PhD student (Natural History Museum of Denmark, Copenhagen University and Museum Mors), studying the exquisitely preserved fish fossil fauna from the Fur Formation of northern Denmark.

