Oral presentation

Application of EPMA to Sirius Passet fossils

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Electron Probe Microanalyzer (EPMA) is a delicate microbeam instrument which provides non-destructive chemical analysis of solid samples. Although it is fundamentally similar to Scanning Electron Microscope (SEM), EPMA is capable of more precise and quantitative elemental analysis by using wavelength-dispersive spectroscopy (WDS). Due to the higher spectral resolution and the peak to background ratio, WDS produces better results than EDS in elemental imaging. Sirius Passet is a Konservat-lagersttäte, located in Peary Land, North Greenland, producing early animal fossils from the Cambrian Stage 3. Although most of the documented species were established based on the talus materials, in which fossils are recognized by slight topographic relief, newly collected fossils recovered from the outcrop turn out to preserve reflective carbonaceous film, providing good opportunities for applying EPMA analysis. Recent results from the specimens of the stem-group euarthropod *Kerygmachela* reveal that the nervous systems in the head

region can be recognizable by carbon elemental mapping. EPMA is being applied to various fossils from Sirius Passet, including *Kiisortoquia,* vetulicolians, and other new animals, which would show previously unknown or overlooked structures in these animals. The application of EPMA to the fossils from other Konservat-lagersttäten could also bring new aspects in understanding the Cambrian soft-bodied animals.