

**DEPARTMENT OF CHEMICAL & PHYSICAL SCIENCES
COLLOQUIUM SERIES**

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**The mineralogy of small shelly fossils and redox in
Cambrian oceans**



Small shelly fossils are an enigmatic group of fossils united by preservation style and stratigraphic occurrence rather than affinity. They appear and expand globally in the early Cambrian (around 540 million years ago) and then mysteriously decline by middle Cambrian time (~510 million years ago). Here, we document new occurrences of small shelly fossils that are preserved by a diverse array of minerals, suggesting a prevalence of low oxygen conditions in sediment pore waters during much of this interval in the Cambrian. We argue that the nature and style of fossil preservation may be a useful proxy for sedimentary redox conditions in the ancient past.