

From hard rock to heavy metal: high-mass stable isotope adventures in mantle geochemistry - *P. Gast Medal Lecture*

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The silicate mantles of terrestrial planets constitute the vast proportion of their mass and govern their chemical and geodynamic evolution and potentially even influence their habitability. Understanding the physical and chemical interplay between the Earth's mantle, crust and core is a fascinating subject that has challenged geochemists for decades. In this talk, I will discuss how the development of a vast spectrum of high mass (> 20 amu) stable isotope systems has contributed to the field of mantle geochemistry over the last decade and the new opportunities and challenges that the application of these tracers has provided.