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# Chromium, Nickel and Iron as clues to the formation histories of exoplanetary bodies

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We are now entering an era of rocky exoplanet detection. To determine whether an exoplanet is 'Earth-like', we must estimate not only its mass, radius and insolation, but also its geological composition. These geological constraints have wide ranging implications, not least for a planet's subsequent evolution and habitability.

Polluted white dwarfs which have accreted fragments of planetary material provide a unique opportunity to probe exoplanetary interiors. We can also learn about their formation histories, including the geological process of core-mantle differentiation.

Cr, Ni and Fe behave differently during differentiation, depending on the conditions under which it occurs. This alters the Cr/Fe and Ni/Fe ratios in the core and mantle of differentiated bodies. The pressure inside the body is a key parameter, and depends on the body's size.

In our work, we present a novel approach for modelling this behaviour and use it to gain crucial insight into the sizes of exoplanetary bodies which pollute white dwarfs.