

COLLISIONS IN WHITE DWARF DEBRIS DISCS

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White dwarfs are often found to be accreting metals from their remnant planetary systems, giving access to the bulk compositions of the building blocks of rocky planets. A subset also show excess infrared emission from circumstellar material, where debris from tidally-disrupted asteroids orbits before it arrives at the stellar surface. Dozens of such systems are known, and a photometric campaign supplemented by archival data reveals widespread infrared variation. Larger variations occur on longer timescales, and systems where gaseous debris is observed in emission are the most variable. These findings are at odds with the standard model for white dwarf debris discs, but are consistent with those discs being sites of planetesimal collisions that produce dust and gas. Modelling of the light curve at the most active system yet identified lends strong support to that hypothesis.