

Contributed Talk

Splinter Exoplanets

INDICATORS FOR PLANETS IN DEBRIS DISC SYSTEMS

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We statistically analysed a sample of 71 spatially resolved debris discs in order to find indicators for existing planets in these systems. This sample is the largest of resolved debris discs investigated so far and contains nine systems with known planets. We combined targets resolved in thermal emission with a collection of discs resolved in scattered light. For each disc in the sample, the dust fractional luminosity is known from the spectral energy distribution, while the disc radius is constrained directly by the resolved image.

We searched for possible trends between the disc parameters (fractional luminosity and disc radius) and other properties of the systems (such as stellar luminosity and age of the systems). We have also considered the subsample of systems known to harbour planets to see whether they follow the same trends as the systems without previously discovered planets. For instance, we checked whether debris discs in systems with known planets are dustier or have a different size than those without planets. The primary goal here has been to find the systems that are likely to host as yet undiscovered planets and thus to identify the most promising targets for future planet searches.

We confirmed several trends reported previously. These are consistent with theoretical predictions, indicating that the collisional evolution models used can describe the observational results in a reliable way. Several other potential trends seen in this study can probably be attributed to observational limitations or biases. As a result, we find it difficult to identify direct indicators for planets in systems with debris discs.