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Can large protoplanetary discs produce rogue worlds?

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The origins of massive planets seen by direct imaging are uncertain, but these worlds far from their host stars are likely the most vulnerable to ejection in stellar encounters. We have just completed the Planet-Earth Building-Blocks Legacy e-MERLIN Survey (PEBBLeS), which gives the first view of the distribution of small rocks (planetary seeds) in the midplane of massive discs of young stars. We find asymmetries in some large discs that could be the birth-sites of such distant massive planets. Repeating these radio images over time can show whether any of the proto-worlds are being ejected.

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