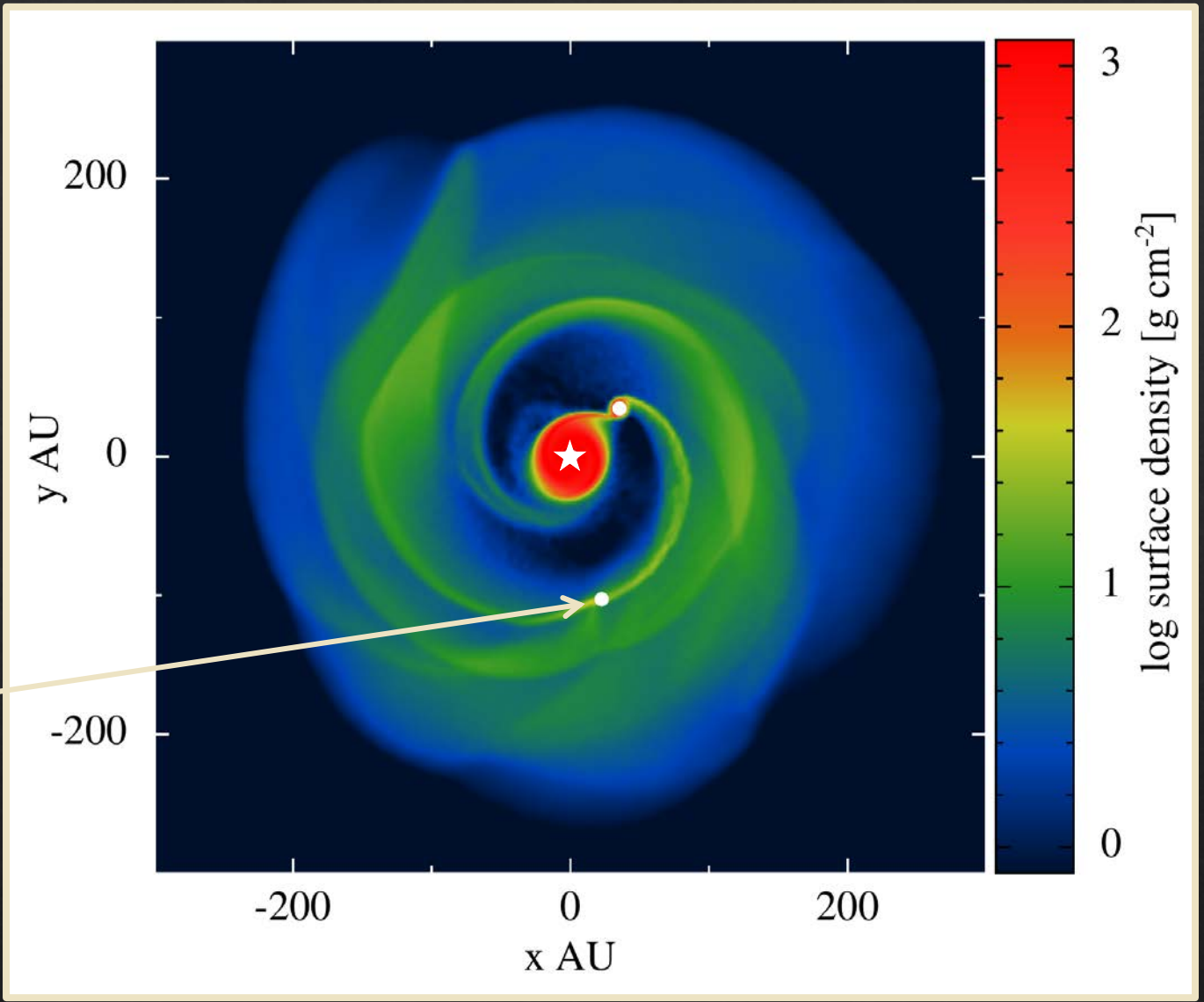
Episodic Accretion: Disc Evolution and Chondrule Formation

Anthony Mercer & Dimitris Stamatellos

apmercer@uclan.ac.uk

Setup

- 0.7 $M_\odot$ star, 0.3 $M_\odot$ disc i.e. gravitationally unstable
- Radiative transfer (Stamatellos et. al 2007)
- Secondary objects form though gravitational instability
- **We consider radiative feedback from these objects only**



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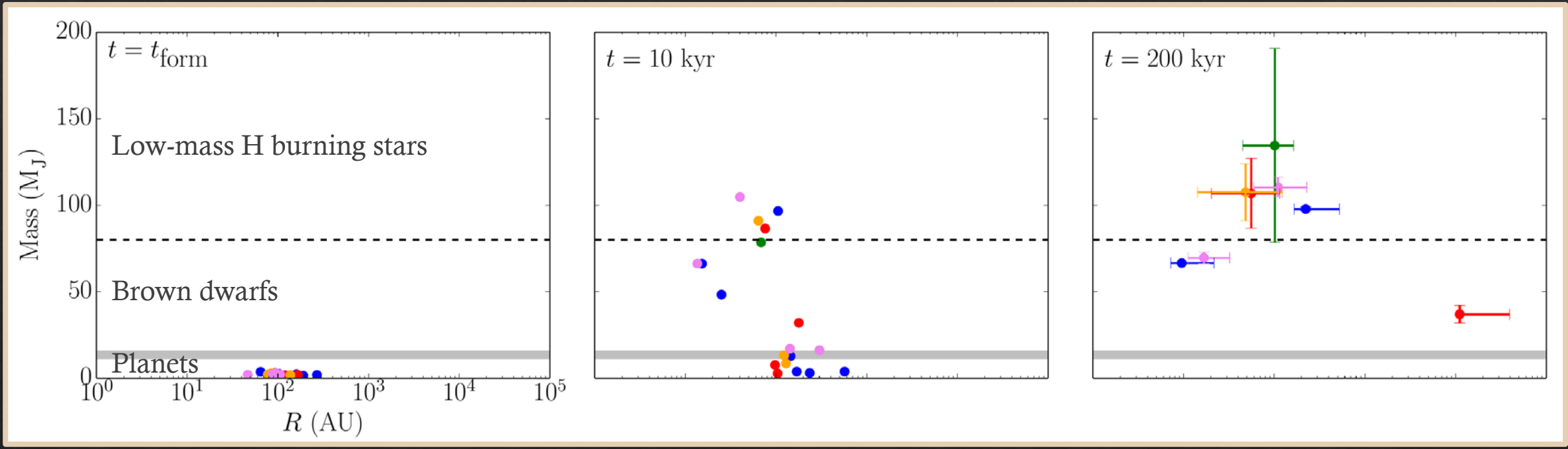
uclan

apmercer@uclan.ac.uk

Disc Evolution



- Planets form at radii beyond ~60 AU. Low-mass components are ultimately ejected
- Episodic radiative feedback mildly suppresses mass accretion

- **Episodic radiative feedback does not suppress disc fragmentation**

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uclan

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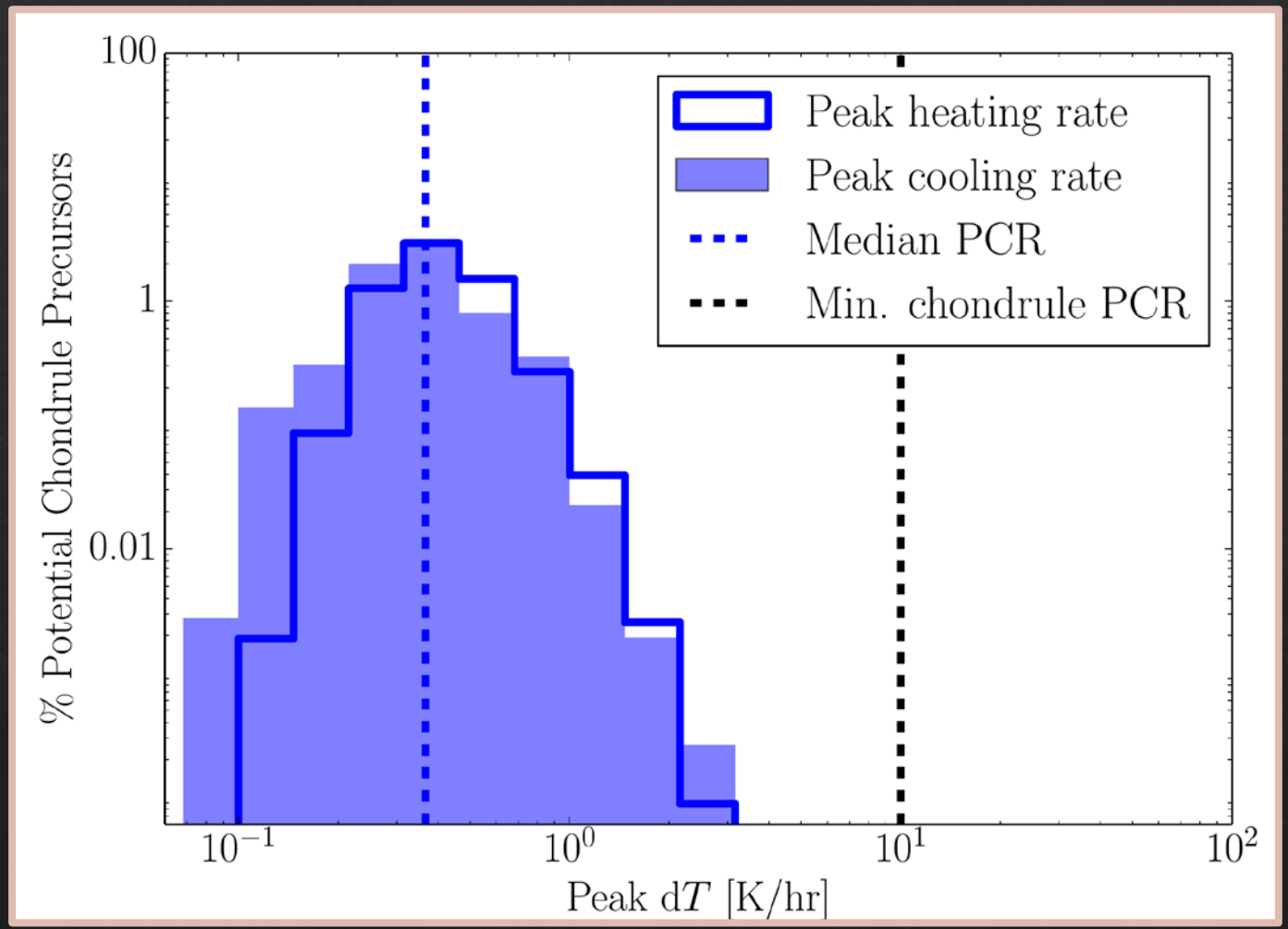
Chondrule Formation

- Heating to 1600 < T < 2100 K within a few AU of objects, not in spiral arms
- Similar peak heating and cooling rates
- Peak cooling rates prior to crystallisation are a few magnitudes too low
- Generally accreted onto formed objects, they do not distribute throughout the disc
- **Episodic radiative feedback does not lead to chondrule formation**



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uclan

apmercer@uclan.ac.uk