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Precise asteroseismic ages from pulsating pre-main-sequence stars

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The ages of stars are notoriously difficult to determine, especially for young stars that are still shrouded in dust or surrounded by discs. Here, every Myr matters, as we try to probe the processes of planet formation and stellar composition build-up. We typically rely on ensemble ages determined for clusters or associations, but age gradients and age dispersion limit the accuracy of this method. I will discuss recent results from asteroseismology of pre-main-sequence delta Scuti pulsators, where age precisions of ~10% (~1 Myr) can be achieved. I will describe the evolution of pulsation frequencies in pre-main-sequence stars and how this allows masses and metallicities to be determined in a degeneracy-free way, permitting stellar associations to be dated with much better precision.

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