

Constraints for the ages of pre-MS stars from asteroseismology

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Age is a fundamental tool to understand different phenomena in stellar astrophysics. But in the pre-main sequence (pre-MS) stages, the errors in age can be up to 100% as for example the ages of young clusters are typically given as 5 ± 5 Myr. Asteroseismology of pre-MS stars can be used as a novel age indicator because the pulsations provide an observable that is changing sensitively and smoothly with age and is independent of distance. The analysis of the pre-MS stars' pulsation properties provides important constraints for the pre-MS lifetimes. Furthermore, measuring the evolutionary changes of the pulsation periods enables us to investigate the speed of early stellar evolution and test our current theoretical models. I will present the first measurements of evolutionary period rate changes for stars in the young cluster NGC 2264 and latest results illustrating how asteroseismology can constrain the ages of pre-MS stars.

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