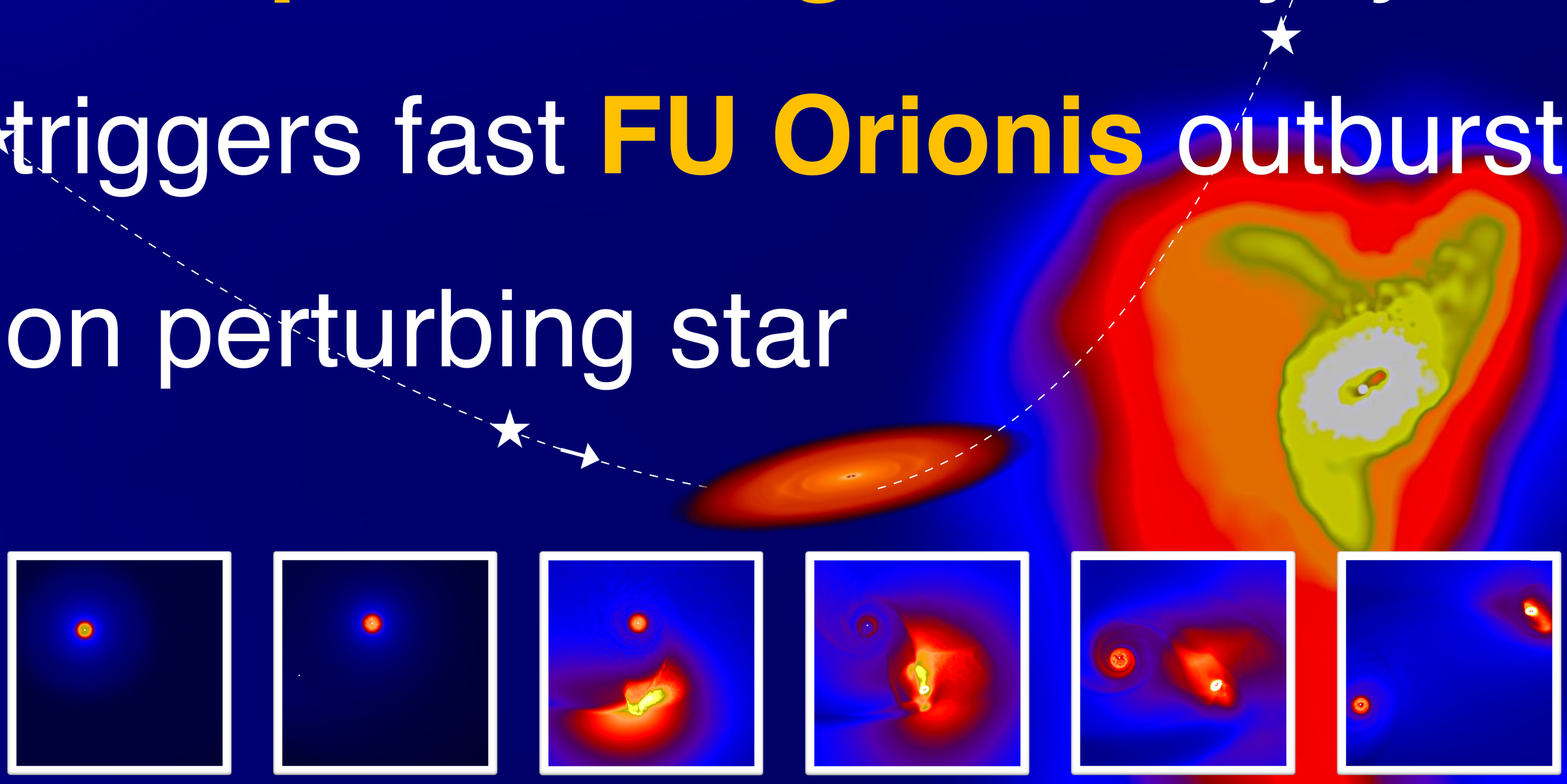
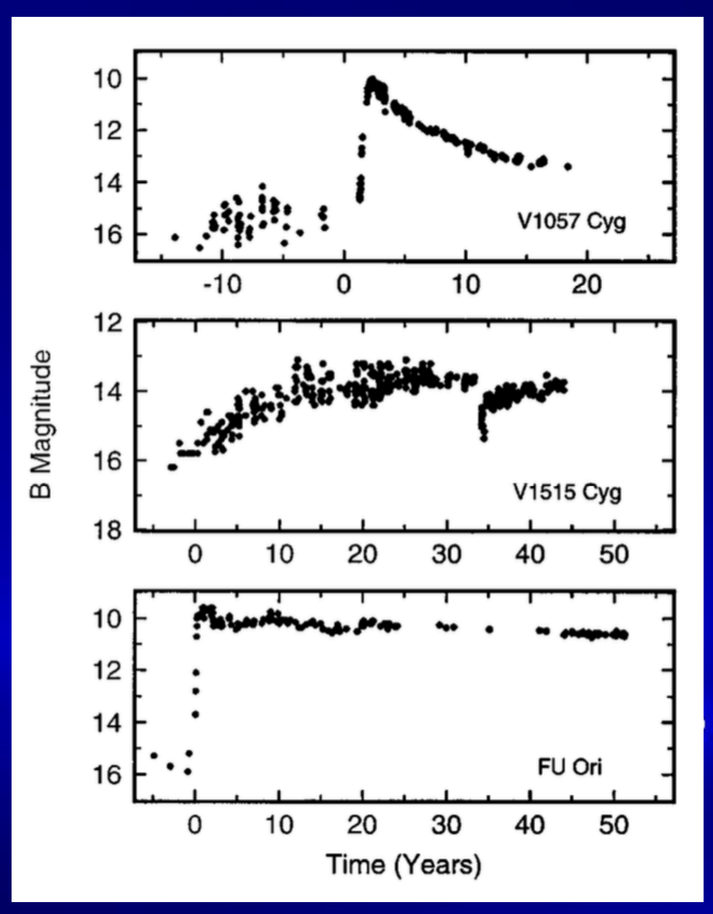
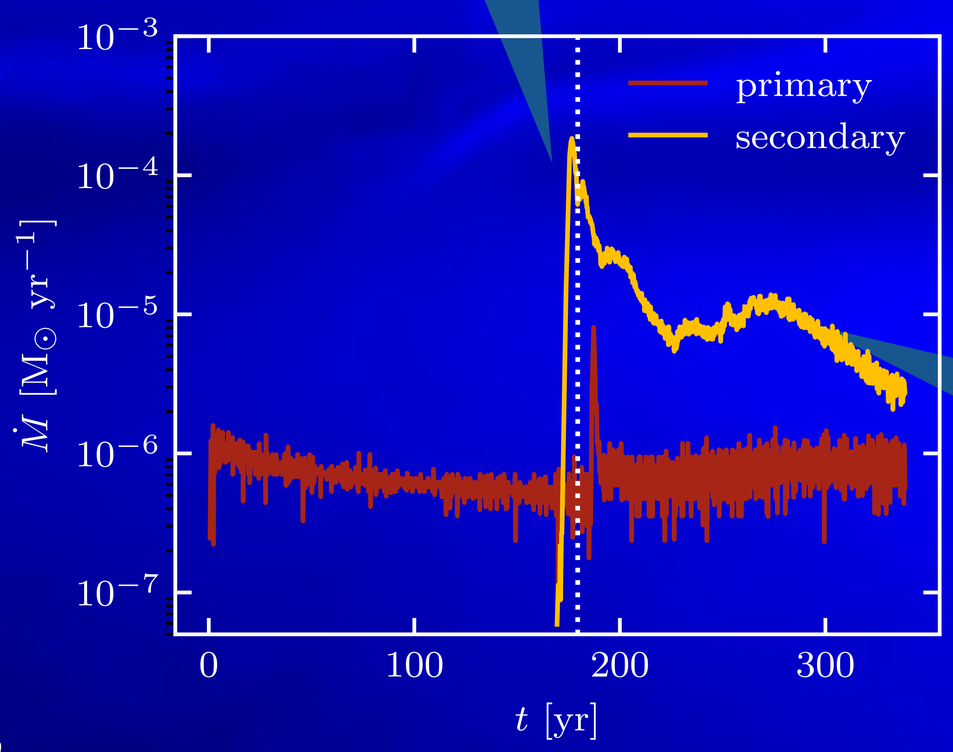
Disc-penetrating stellar flyby triggers fast **FU Orionis** outburst on perturbing star



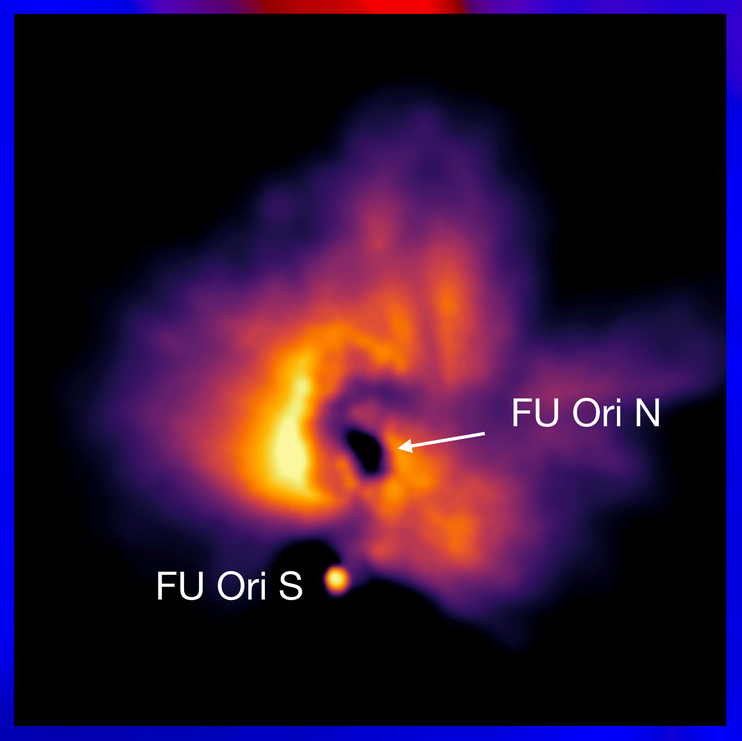


In 1936, a previously unremarkable 16th magnitude star in Orion brightened by 6 magnitudes and remained bright ever since. [1] This star is called FU Ori (bottom panel)

Fast mass accretion rise as seen in FU Ori, with perturbers that penetrate the disc.



3D SPH simulations using PHANTOM with live radiative transfer through MCFOST of an unbound stellar flyby on a parabolic orbit.



FU Ori is a binary system where the low mass star (top source) was discovered to be in outburst. [2]

Mass accretion rate of the secondary continues at a higher level to what it had been pre-flyby for the primary

On the rise times in FU Orionis events

Elisabeth M. A. Borchert[1], Daniel J. Price[1], Christophe Pinte[1,2], Nicolás Cuello[2]

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Simulation Videos

[1] Hartmann L., Kenyon S. J., 1996, ARA&A , 34, 207

[2] Cuello N., Ménard F., Price D. J., 2023, European Physical Journal Plus

[1] School of Physics and Astronomy, Monash University, Clayton Vic 3800, Australia
[2] Univ. Grenoble Alpes, CNRS, IPAG / UMR 5274, F-38000 Grenoble, France