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3D Models of Maser Flares

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Fully 3D models of astrophysical maser clouds at VLBI scale are used to test several scenarios for the generation of astrophysical maser flares. These include geometrical situations, such as rotation of prolate and oblate spheroidal clouds and superimposition of clouds in the line of sight, as well as parameter variations, such as changes in pump and loss rates, and in the level of the amplified background radiation. Light curves produced by the models are compared with extensive observational data on flaring in TypeII methanol masers to test the likelihood of the different scenarios.