

N25b AGB 星の OH メーザー観測による物質輸送と加速モデルの検証

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We present results of single-dish observation of OH maser (1612/1665/1667 MHz) towards an extreme-OH/IR star NSV17351 using TNRT 40m radio telescope in Chiang Mai, Thailand. NSV17351 is a candidate of an extreme-OH/IR star showing very long pulsation period of 1122 ± 24 days (Nakagawa et al. 2023). After detection of OH maser 46 years ago, we could not find any detection of the OH masers in NSV17351. This can be interpreted that an activity of the OH maser in this star has calmed down. Interestingly, we found an acceleration in the spectrum of H₂O maser around the same star over 40 years, whose terminal velocity is comparable to that of the OH masers found in 1978. We interpret this result as indicating that H₂O gas has been accelerated to a terminal velocity and transported to the outermost region of stellar envelope. It can be predicted that the H₂O molecules in the transported gas will soon be photodissociated, and the OH maser will be brightened again. As expected, in 15 May 2024, we detected 1612 MHz OH maser (~ 400 mJy) in a TNRT 40m single-dish observation. Successful detection of the OH maser in NSV17351 can be a verification of a scenario for mass transfer and OH maser formation.