

Full-polarization study of the OH masers in W49 SW

Kitiyanee Asanok^{1,3}; Busaba Hutawarakorn Kramer^{2,3}; Sandra Etoka⁴; Malcolm David Gray⁴; Anita M.S. Richards⁴; Nipon Gasiprong⁵

¹*Department of Physics, Faculty of Science, Khon Kaen University, Khon Kaen, 40002 Thailand*; ²*Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, D-53121 Bonn, Germany*; ³*National Astronomical Research Institute of Thailand (Public Organization), Siripanich Building, 191 Huay Kaew Road Muang District, Chiang Mai Thailand, 50200*; ⁴*The University of Manchester, Jodrell Bank Centre for Astrophysics, School of Physics and Astronomy, Alan Turing Building, Manchester M13 9PL, UK*; ⁵*Department of Physics, Faculty of Science, Ubon Ratchathani University, Ubon Ratchathani, 34190, Thailand*

We present results of full-polarization measurements of the ground state (1612, 1665, and 1667 MHz) and excited state (1720 MHz) OH maser lines in W49 SW. The observations were made 2 epochs with the Multi-Element Radio Linked Interferometer Network (MERLIN) and upgraded e-MERLIN system, operated by Jodrell Bank Centre for Astrophysics (JBCA) and the University of Manchester for the Science and Technology Facilities Council, United Kingdom. We detected two Zeeman pairs, one in 1612-MHz lines and another in 1665-MHz lines. The magnetic field strength derived from these two Zeeman pairs is at the level of a few mG which is significant enough to play an important role in star-forming processes. Moreover, the Zeeman pairs show opposite senses of magnetic field directions, providing evidence for magnetic field reversal. The significance of circular and linear polarization fractions as well as the alignment of linear polarization relative to source structures will also be discussed.