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Superfluid–Mott insulator transition of spin-1 bosons in optical resonators LU ZHOU, JUN-NI WU, JING QIAN, XING-DONG ZHAO, WEIPING ZHANG, East China Normal University — We consider an antiferromagnetic spin-1 Bose-Einstein condensate confined in a Fabry-Pérot optical resonator, in which the intracavity light field form an optical lattice potential for the atoms. Special emphasis is paid to the cavity-mediated superfluid–Mott insulator transition. We found that exotic phase diagrams can appear due to the competition between cavity-induced nonlinear interaction and the atomic spin-dependent collision interactions.

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