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Dynamical variational approach to finite-temperature Bose polarons DAVID DZSOTJAN, University of Kaiserslautern, Kaiserslautern, Germany, RICHARD SCHMIDT, Max-Planck Institute of Quantum Optics, Garching, Germany, MICHAEL FLEISCHHAUER, University of Kaiserslautern, Kaiserslautern, Germany — We discuss finite-temperature effects on the interaction of a mobile impurity with a Bose-Einstein condensate using a dynamical variational approach based on coherent state wave functions. Taking into account the thermal occupation of Bogoliubov excitations by averaging over initial coherent states with Gaussian random amplitudes, we predict the finite-temperature polaron absorption spectrum from a calculation of the the time-dependent Ramsey signal. In the limit of infinite impurity mass, the variational problem can be solved exactly, while in the general case we rely on a mean-field decoupling of the auxiliary random fields. Different from previous predictions [1], we do not find a thermally-induced splitting of the polaron peak, but solely temperature-induced broadening and shifts. We compare our results with recent experiments on Bose polarons where temperature effects are relevant [2]. *Ref.*: [1] N.-E. Guenther, et al., Phys. Rev. Lett. 120, 050405 (2018), [2] N.B. Jorgensen, et al., Phys. Rev. Lett. 117, 055302 (2016)

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