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Dipolar confinement-induced resonances of ultracold gases in waveguides PANAGIOTIS GIANNAKEAS, Zentrum fuer Optische Quantentechnologien, Luruper Chaussee, 149, 22761, Hamburg, Germany, VLADIMIR MELEZHIK, Bogoliubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, Dubna, Moscow Region 141980, Russian Federation, PETER SCHMELCHER[1], Zentrum fuer Optische Quantentechnologien, Luruper Chaussee, 149, 22761, Hamburg, Germany — Exploring the impact of anisotropic dipolar interactions for ultracold collisions in quasi-one-dimensional traps we derive and analyze dipolar confinement-induced resonances (DCIRs) attributed to different angular momentum states. Our analysis is based on an extended K-matrix approach for quasi-one dimensional geometries. An analytically derived resonance condition allows us to predict the positions of DCIRs. The results obtained within the K-matrix theory are in excellent agreement with corresponding exact numerical calculations.

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