STRUCTURE AND DYNAMICS OF THE Ar - CH_4 VAN DER WAALS COMPLEX

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The Van der Waals complex formed between an argon atom and a methane molecule has interesting and unusual dynamics. Its relatively low potential anisotropy leads to almost free rotation of the methane unit and consequently to counterintuitive appearing spectra. Both potential anisotropy and Coriolis effects due to internal rotation of the monomer contribute significantly to the energy level pattern of the complex. Its infrared spectrum at the ν_3 band of methane is investigated and parameters of its potential energy surface are extracted from it. The results are compared to symmetrised close - coupling calculations on the complex using the BOUND program.