

Abstract for an Invited Paper
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Van der Waals interactions in density functional theory¹

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The van der Waals density functional which we introduced half a decade ago² and its self-consistent generalization³ will be briefly reviewed. There are many collaborators in the application review that will follow, not only those who worked in the physics department at Rutgers⁴ and at Chalmers,⁵ but also at Denmark's Technical University,⁶ the chemistry department at Rutgers,⁷ and most recently at the University of Texas at Dallas.⁸ I will expand on our recent review article,⁹ which hopefully will be published before the present talk, and include applications by other groups not listed below. If possible, I will also review results from a more recent collaboration to study nucleosomal DNA and beyond.

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²M. Dion et al. Phys. Rev. Lett. **92**, 246401 (2004).

³T. Thonhauser et al., Phys. Rev. B **76**, 125112 (2007).

⁴Maxime Dion, Aaron Puzder, T. Thonhauser, Valentino R. Cooper, Shen Li, Eamonn Murray, Lingzhu Kong, and Kyuho Lee.

⁵Henrik Rydberg, Svetla Chakarova-Käck, Jesper Kleis, Elsebeth Schröder, Per Hyldgaard, and Bengt I. Lundqvist.

⁶Andrei Kelkkanen, Poul G. Moses, Jesper Kleis, and Bengt I. Lundqvist.

⁷Konhoa Li, Jing Li, Yves Chabal, and Wilma K. Olson.

⁸Nour Nijem and Yves Chabal.

⁹D. C. Langreth et al., J. Phys. Cond. Mat. (in press).