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Charge transport in guanine crystals FRANK ORTMANN, KARSTEN HANNEWALD, FRIEDHELM BECHSTEDT, ETSF and IFTO, Friedrich Schiller University Jena, Germany — Charge-transport processes in organic molecular crystals exhibit similarities and differences to those in π-conjugated polymers. For both types of condensed matter the polaronic effects are of high importance. These effects can cause a transition from bandlike transport to themally activated hopping. While the hopping regime is prevalent for DNA polymers, it is not clear if the same holds also for crystalline guanine or if band transport dominates. Also the influence of the temperature is rarely discussed in literature. In our approach to the problem of charge-carrier transport in these systems [1], we discuss the temperature dependence of the polaron bandwidth and the mobility in guanine crystals [2].
[1] K. Hannewald *et al.*, Phys. Rev. B **69**, 075211 (2004); 075212 (2004).
[2] F. Ortmann *et al.*, J. Phys. Chem. B (to be published).

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