Algorithmic Problems in Computer and Network Power Management^{*}

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Abstract. Power management has become an important issue in the design of information systems. Computer industry struggles to cope with the energy and cooling costs for servers. The wireless ad hoc network community has to invent clever schemes to conserve the limited power available to individual small radio devices. The algorithmic challenges in studying these problems involve both proper mathematical modeling and finding solutions to the resulted optimization problems. In this talk, we will look at some sample problems of power management in computers and wireless networks, discussing their mathematical modeling and efficient algorithms. It will be seen that graph theory and computational geometry can often play a role in providing effective solutions.

^{*} The work reported here is supported in part by grants from the Research Grants Council of the Hong Kong SAR, China, under Project No. 122105, 122807, and the National Basic Research Program of China Grant 2007CB807900, 2007CB807901.