**Fast direct high-order methods**
**for electromagnetic scattering from bodies of revolution**

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**Abstract:** Full three-dimensional high-order codes for electromagnetic scattering from complex geometries are currently out of reach in most cases. However, in some (non-trivial) geometries very efficient algorithms can be constructed. In this talk, we will detail a separation of variables method along bodies of revolution that results in a sequence of boundary integral equations along only a one-dimensional curve. The overall scheme, accelerated by the FFT, results in an overall $O(N^3/2)$ direct method for solving scattering problems from perfect electric conducting and dielectric bodies of revolution. Several numerical examples will be included, as well as an overview of the evaluation of modal Greens functions and the various numerical tools needed in the construction of this solver.