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T. M. Dunster* (dunster@math.sdsu.edu), Department of Mathematics and Statistics, San Diego State University, 5500 Campanile Drive, San Diego, CA 92182-7720. *Electromagnetic wave scattering from two infinite dielectric cylinders.*

We consider wave scattering from 2 parallel infinite dielectric cylinders, illuminated by an incident electric field with arbitrary distribution and polarization. The scattered electric and magnetic fields from both cylinders can be expressed as infinite series involving Hankel functions, and whose coefficients satisfy a coupled system (which involve Bessel and Hankel functions). We show how this system can be simply decoupled, and this in turn solved by successive approximations. We finally rigorously prove, under explicit conditions on the physical parameters of the problem, convergence of the successive approximation scheme. This is achieved by utilizing certain bounds on Bessel functions, which are derived from asymptotic and integral representations. (Received September 09, 2012)