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Development of the Indiana Rf Photocathode Source Simulator MARK HESS, CHONG SHIK PARK, Indiana University Cyclotron Facility, DANIEL BOLTON, Colorado School of Mines — One of the challenging issues for simulating rf photocathode sources is how to incorporate fully electromagnetic effects which are generated by the bunched electron beam in the vicinity of complex conducting wall structures. This problem can be handled self-consistently by using a time-dependent Green's function formulation of the electromagnetic fields. We are currently developing a new simulation code called, IRPSS (Indiana Rf Photocathode Source Simulator), which utilizes the time-dependent Green's function method. We discuss the theory and current capabilities of IRPSS, and show the initial results of simulations performed on IRPSS using the experimental parameters of existing rf photocathode sources.

Mark Hess
Indiana University Cyclotron Facility

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