Self-consistent non-stationary model for the analysis of multipactor phenomenon in dielectric-loaded accelerating structures[1] OLEKSANDR SINITSYN, GREGORY NUSINOVICH, THOMAS ANTONSEN, RAMI KISHEK, IREAP, University of Maryland, IREAP, UNIVERSITY OF MARYLAND TEAM — Multipactor (MP) may occur in many situations: one- and two-surface MP, resonant and poly-phase-MP, on the surface of metals and dielectrics etc. We consider this phenomenon in dielectric loaded accelerating (DLA) structures. The starting point for our work is experimental and theoretical studies of such structures jointly done by Argonne National Lab and Naval Research Lab (J. G. Power et al., PRL, 92, 164801, 2004). In the theoretical model developed during those studies, the space charge field due to the accumulated charged particles is taken into account as a parameter. We offer a non-stationary model where the DC field is taken into account self-consistently. In this work, some improvements have been made to our earlier (see materials of High-Gradient Collaboration Workshop, University of Maryland, Jan. 23-24, 2008, web: http://www.ireap.umd.edu/High-Gradient-Workshop-2008/Itinerary.htm) model, in particular the effect of cylindricity has been taken into account. Some results of our recent simulations will be presented and discussed.

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