1075-65-195 **Mikhail Y Zaslavsky*** (mzaslavsky@slb.com), 1 Hampshire str, Cambridge, MA 02139, and **Vladimir L Druskin** and **Valeria Simoncini**. *Solution of the time-domain inverse resistivity problem in the model reduction framework.*

In this work we consider the model reduction approach based on the Rational Krylov subspace (RKS) projection method. We derive a representation for the reduced Jacobian as the product of a time-dependent and a stationary part. We show that the RKS satisfying the Meier-Luenberger necessary H_2 (Hardy space) optimality condition not only minimizes the approximation error but completely annuls its influence on the inversion result (even if the subspace is not optimal globally). More precisely, the approximation error belongs to the (left) null-space of the reduced Jacobian. We compare inversion on such subspaces using other nearly optimal RKS's based on Zolotarev problem and adaptive pole selection algorithm. (Received August 29, 2011)