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**Selin Sariaydin\*** ([selin@vt.edu](mailto:selin@vt.edu)), Virginia Tech, Blacksburg, VA, and **Eric de Sturler**, **Serkan Gugercin** and **Misha Kilmer**. *Randomization for Efficient Reduced Order Models*. Preliminary report.

Diffuse Optical Tomography (DOT) in medical image reconstruction presents huge computational challenges since it requires at least one forward and adjoint PDE solve for each source and detector at each optimization step. One can use reduced order models (ROM) to reduce the size of the linear systems, but computing the reduced order model still requires solving many systems. In this talk, we propose to reduce the number of large linear solves for constructing a ROM global basis by randomization. (Received September 25, 2017)