Abstract Submitted
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In vivo **determination of the structure of oligomers of a G protein-coupled receptor** SASMITA RATH[1], VALERICA RAICU, Department of Physics, University of Wisconsin, Milwaukee, WI 53211 — Resonance Energy Transfer (RET) is a process of nonradiative energy transfer between a donor and an acceptor molecule, which is widely used for studies of protein-protein interactions in living cells. Here we report on the results of a spectrally-resolved two-photon microscopy study of image pixel-level RET in yeast cells (*S. cerevisiae*) expressing a G-protein-coupled receptor called Sterile 2 α factor protein (Ste2P). The number of pixels showing RET were plotted against the RET efficiency to obtain distributions of RET efficiency in the cells. These distributions were simulated with models for plausible geometries and sizes of protein complexes (V. Raicu, 2007, *J. Biol. Phys.* **33:**109–127). From all the models tested we found that a parallelogram-shaped tetramer is the most likely structure for the Ste2p oligomers.

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