Syracuse University
College of Arts & Sciences

Kenneth Foster

Professor Emeritus

Physics Department

kwfoster@syr.edu

375 Physics Building

315.443.9220

CV (.pdf)

Research Page

Research Interests

- How visual receptors detect light and GPCR receptors activate.
- The self-organized beating of cilia.
- Sensory and metabolic control of ciliary behaviors; phototaxis, object avoidance, the ballistic-diffusive ratio, etc.
- Nonlinear dynamics of biological-cell signal processing; complex mapping of multiple signal inputs to responses.
- How small aquatic organisms and larvae steer and navigate in three dimensions without sensing gravity.

Education

1972 Ph.D. in Biophysics
California Institute of Technology

1965 B.Sc. (Honors) in Physics
University of Victoria, Canada

Selected Publications

Foster, Kenneth W., Jureepan Saranak, Sonja Krane, Randy L. Johnson, Koji Nakanishi (2011). "Evidence from Chlamydomonas on the photoactivation of rhodopsins without isomerization of their chromophore". Chemistry & Biology 18, 733-742.

Blair, Howard A., Jureepan Saranak and Kenneth W. Foster. (2011) "Reverse engineering cellular decisions for hybrid reconfigurable network modeling" in Independent Component Analyses, Wavelets, Neural Networks, Biosystems, and Nanoengineering IX, Harold Szu and Liyi Dai (eds.) Proc. of SPIE Vol. 8058, 80581L, pp. 80581L-1 -- 80581L-14.

Foster, K.W. (2009). Eye evolution: Two eyes can be better than one. Curr. Biol. 19, R208-R210.

Josef, K., Saranak, J., and Foster, K.W. Linear systems analysis of the ciliary steering behavior associated with negative-phototaxis in Chlamydomonas reinhardtii. Cell Motility & the Cytoskeleton 63:758-777 (2006).

Saranak, J., and Foster, K.W. The Photoreceptor for Curling Behavior in Peranema trichophorum and the Evolution of Eukaryotic Rhodopsin, Eukaryotic Cell (4 (10) 1605-1612 (2005).
