Bob Austin
Princeton University

Coherent, ps tunable light sources in biology
FELs, long the stepchild of accelerator based light sources, are now suddenly growing in numbers and importance. I was in the game from the beginning, trying to use them for protein dynamics studies, it has been a long cold struggle. It is a pleasure to see this technology suddenly blooming in my old age.
What do FELs bring to biology:

1) fs/ps INTENSE, BRIGHT X-ray beams for structure studies, esp. time-resolved.

2) fs/ps INTENSE, BRIGHT, TUNABLE tunable mid-far IR for protein dynamics

3) fs/ps tunable vis/UV/X-ray (?) for imaging technologies of tissue.

4) (tunable?) gamma radiation for studies of immune system response, stem cell dynamics in response to deep ionizing radiation (nuclear attack).