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Time resolved small angle x-ray scattering studies of macromolecular folding LISA KWOK, JESSICA LAMB, HYE YOON PARK, KURT ANDRESEN, School of Applied and Engineering Physics, Cornell University, HEATHER SMITH, Physics Department, Cornell University, ALEC SANDY, SURESH NARAYANAN, Advanced Photon Source, Argonne National Lab, LOIS POLLACK, School of Applied and Engineering Physics, Cornell University — Large biological molecules like proteins and RNA, carry out their functions by folding to well-defined three-dimensional structures. We are interested in the physical interactions that direct this self-assembly process. By combining microfabricated rapid mixers with synchrotron x-ray scattering, we have gained insight into the earliest steps of folding of the Tetrahymena ribozyme, a model for large RNAs. Previous work has shown that the first folding step involves electrostatic relaxation of the molecule. We will discuss a recent series of experiments that identify the tertiary contacts that form from within this compact state.

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