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Submission by July 18, 2013

Call for Papers in a Special Issue (October 2013) on

MEASURING AND SOLVING SINGLE MOLECULES

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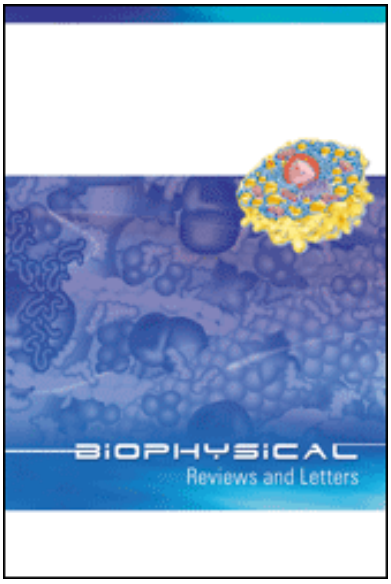
Publication is expected within about three months from the call deadline



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Dear Colleagues,

In biophysics, physics, chemistry and materials science, we can measure single molecules and nanoparticles at room temperature. This is a result of tremendous achievements in developing various microscopy methods, since the seventies with patch clamp experiments studying ion channels, and through the eighties studying a spectrum of systems in the above indicated fields with spectroscopic methods, force manipulations, etc. These are still advancing nowadays. In biophysics in particular, we can win deep knowledge about many biological processes, in terms of the kinetic schemes, energy surfaces, etc., only when solving single molecules. Enzymes form such an example: only when solving single enzymes, can we have answers about accurate models. This puts this field among the most important ones in biophysics.

Famous systems and processes that are frequently measured on the single molecule level include: (***) biological ion channels (***) activity of enzymes and dynamics of biopolymers and nano particles (***) quantum dots and applications of these nano crystals. Amongst the many smart methods developed and successfully used so far in probing such processes, we indicate: confocal and super-resolution microscopies, fluorescence resonance energy transfer (FRET), atomic force microscopy (AFM), and optical traps. These systems, processes and measurements – methods form the center in this Special Issue

In this Special Issue, we are in particular interested in the following (within the context specified in this call): (A) new measurement – methods that can supply additional information about the measured process, (B) new behaviors of entities reported when measuring individual molecules, and (C) new statistical and numerical methods of solving trajectories from single molecules that extract the model from the noisy data. We encourage scientists to submit reviews and original research papers that deal with the following systems, yet also with related ones, in the context of measuring and solving individual entities:

*** enzymes: activity, pathways, etc
*** conformational dynamics & activity of biopolymers and biocomplexes
*** motion of biopolymers and nano particles in various surroundings
*** biological channels
*** individual molecule AFM AND optical traps
*** quantum dots: the blinking phenomenon and other relevant applications
*** mathematical and statistical methods about solving clean typical data
*** mathematical and statistical methods about solving noise in typical data
*** mathematical models of relevant processes

We expect several dozen papers in this Special Issue, from both young and established scientists in this field. We expect that this Special Issue will constitute an important publication in this field and will use the list of authors when organizing a conference in this field.

Further information is available at the website of the journal: Biophysical Reviews and Letters

For submission for this Special Issue, please log on to http://www.editorialmanager.com/brl/. Click on "Submit a Manuscript" and click "Register Now" if you are a new user.

Scientists are encouraged to ask any question to the specific editors of this Special Issue (emails are specified above).

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