



## Single Molecule Tracking and Dynamics

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### Message from the Guest Editor

The foundations for many of the methods that enable single particle tracking and single molecule imaging are now well established, this area of research is remarkably vibrant. Advances in research on photoactivated proteins and permeable dyes have enabled applications to progress from imaging cell membranes to imaging intracellularly with single molecule sensitivity and specificity. Concomitant with these developments, optical instrumentation and methods that were once restricted to an individual's laboratory are now widely commercially available. This terrific progress has been highlighted by a series of recent Nobel Prizes, including the 2022 prize for developments and applications in click chemistry and bio-orthogonal chemistry. The advent of ubiquitous pattern recognition approaches has simplified the analysis of tracking results. These methods have reduced the number of experimental errors and significantly increased the confidence in analytical interpretation of acquired data. Since their inception, single molecule tracking approaches have enabled the verification of proposed models. Contemporary applications continue to push the boundaries and establish new frontiers.





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## Message from the Editor-in-Chief

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