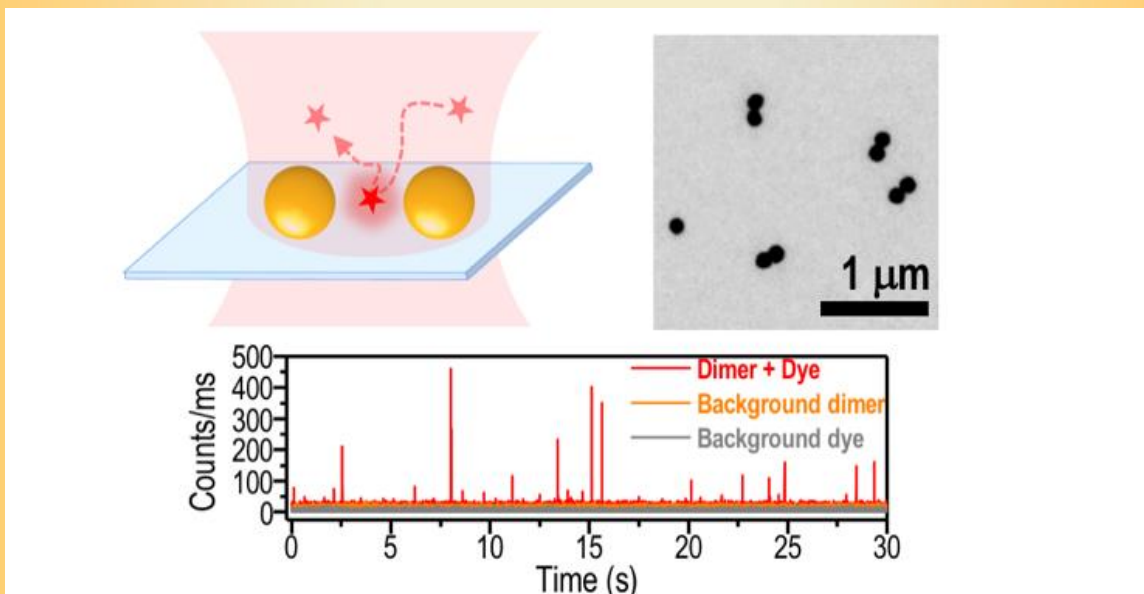


Quinta-Feira, 11 de Janeiro às 15h

Anfiteatro de Física, Escola de Ciências, Campus  
de Gualtar

## Enhanced-Fluorescence of a Dye on DNA- Assembled Gold Nano-Dimers

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**Resumo:** The surface plasmon modes of metal nanoparticles provide a way to efficiently enhance the excitation and emission from a fluorescent dye. We have employed DNA-directed assembly to prepare dimers of gold nanoparticles and used their longitudinally coupled plasmon mode to enhance the fluorescence emission of an organic red-emitting dye, Atto-655. The plasmon-enhanced fluorescence of this dye using dimers of 80 nm particles was measured at single molecule detection level. The top emission enhancement factors were above 1000-fold in 71% of the dimers measured, and, in some cases, they reached almost 4000-fold. The experimental enhancements agree with theoretical predictions obtained from discrete dipole simulations. Such large enhancements open up exciting possibilities for imaging or sensing applications using metal nanoparticles for optical detection.