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## When enzymes are active, are they active matter?

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Enzymes are valuable because they can catalyze reactions by binding transiently and greatly enhance the reaction probability for “substrate” molecules to convert to “product” molecules. But do they receive a physical kick while this reaction is proceeding? This would make them substrate-driven nanometers, or nanoscale active matter. Numerous fluorescence-based measurements (and a few others) say yes; several other measurements now say no!

We examine the diffusion of enzymes attached to nanoparticles (NPs) by multiple techniques. We also measure the enzyme activity of these enzyme-functional NPs. I will talk about the interesting behaviour of the enzyme activity of enzyme-functional NPs. And I might even answer the question in the title!

### Keyword-1

enzymes

### Keyword-2

active matter

### Keyword-3

diffusion

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