

## Large Applicability of Polydopamine Coatings in Energy Production

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Until quite recently, polydopamine (PDA) was mainly applied as a surface initiator for several biomedical applications and as a “sticky” active component sensing platform. However, several previously overlooked properties of PDA have been coming to light as research on this material continues. In this talk, I will mainly focus on the role of PDA coatings in energy applications, such as its apparent universal role as a photosensitizer and its behaviour when in contact with a semiconductor [1]. I will introduce some of the main physicochemical aspects that make PDA an ideal coating for many photocatalytic applications, including results on a variety of semiconducting materials and nanostructures [2]. Finally, some of the recent findings and theories on the origin of this behaviour will be presented as well as some novel PDA architectures [3].

### References

- [1] D. Aguilar-Ferrer, J. Szewczyk, and E. Coy, *Catal. Today* (2021).
- [2] Y. Kim, E. Coy, H. Kim, R. Mrówczyński, P. Torruella, D.-W. Jeong, K. S. Choi, J. H. Jang, M. Y. Song, D.-J. Jang, F. Peiro, S. Jurga, and H. J. Kim, *Appl. Catal. B Environ.* 280, 119423 (2021).
- [3] E. Coy, I. Iatsunskyi, J. C. Colmenares, Y. Kim, and R. Mrówczyński, *ACS Appl. Mater. Interfaces* acsami.1c02483 (2021).