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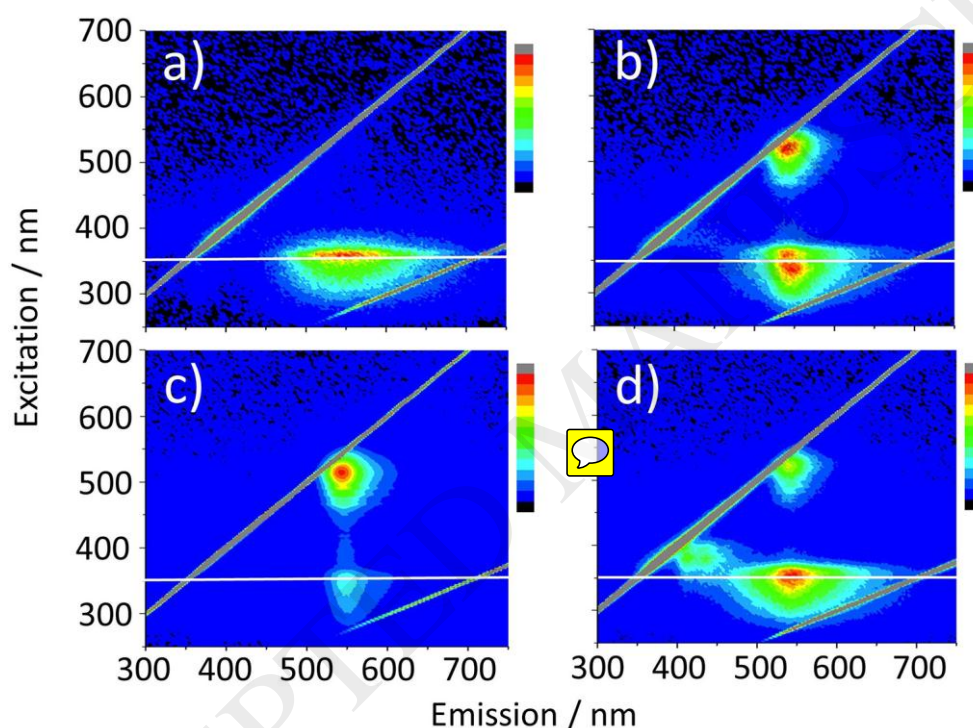
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## Photoluminescence of zinc oxide mesostructured films doped with Rhodamine 6G

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### Graphical abstract



### Highlights

- ZnO mesostructured films doped with rhodamine 6G are highly fluorescent materials
- Emission is dependent on the aggregation states of rhodamine 6G
- Rhodamine 6G in dense and mesostructured ZnO films aggregates into different species
- H-dimers in dense films quench the ZnO fluorescence by interaction with surface defects

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