



# 2D metal–organic frameworks bearing butterfly-shaped metal-bis(dithiolene) linkers from dithiol-functionalized benzenedicarboxylic acid †

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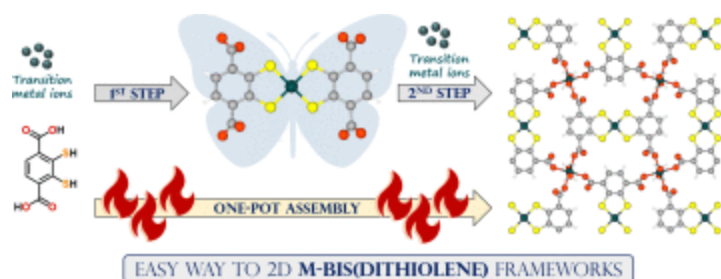
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An assembly between 1,4-dicarboxylbenzene-2,3-dithiol ( $\text{H}_2\text{dcbdt}$ ) and different transition metal ions successfully produced 2D metal–organic frameworks (**M-dcbdt**, M = Ni, Co or Fe) composed of unprecedented butterfly-shaped metal-bis(dithiolene) ( $\text{MS}_4$ ) linkers in one-pot fashion. Such strategy provides easier access to the  $[\text{MS}_4]$ -rich network and lowers the prerequisite to explore their applications.

2D metal-bis(dithiolene) frameworks can be achieved easily either by a stepwise protocol using a butterfly-shaped intermediate or by direct assembly using transition metal ions and 1,4-dicarboxylbenzene-2,3-dithiol.



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- † Electronic supplementary information (ESI) available: Preparation details of **M-dcbdt** and metallolinkers, procedures for photocatalysis, and spectroscopic data, additional plots/figures. See DOI: <https://doi.org/10.1039/d4cc02282c>

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