

EVERY 1D PERSISTENCE MODULE IS A RESTRICTION OF SOME INDECOMPOSABLE 2D PERSISTENCE MODULE

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A recent work by Lesnick and Wright [1] proposed a visualisation of 2D persistence modules by using their restrictions onto lines, giving a family of 1D persistence modules. We explore what 1D persistence modules can be obtained as a restriction of indecomposable 2D persistence modules to a single line. To this end, we give a constructive proof that any 1D persistence module can in fact be found as a restriction of some indecomposable 2D persistence module. As another consequence of our construction, we are able to exhibit indecomposable 2D persistence modules whose support has holes.

REFERENCES

- [1] Michael Lesnick and Matthew Wright. Interactive visualization of 2-d persistence modules. *arXiv preprint arXiv:1512.00180*, 2015.

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