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**Scott Morrison** and **Emily Peters\*** (epeters3@luc.edu), Department of Math and Stats, 1032 W. Sheridan Rd., Chicago, IL 60660-1537, and **Noah Snyder**. *Categories generated by a trivalent vertex.*

Classifying all fusion categories is (with current technology) completely impossible; nevertheless, we can take a step in this direction by classifying small “trivalent” fusion categories. Instead of judging the size of the category by the number of simple objects it has, we fix a generating simple object  $X$  and say that the sequence of dimensions of the Hom spaces from  $X^{\otimes n}$  to  $1$  determines the size of the category. We classify small categories whose Hom spaces are generated by a rotationally symmetric morphism  $\tau$  from  $X \otimes X \otimes X$  to  $1$  – this  $\tau$  is the trivalent vertex – and discuss generalizations. (Received January 22, 2018)