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**Pavel Galashin\*** ([galashin@mit.edu](mailto:galashin@mit.edu)), Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA 02139, and **Pavlo Pylyavskyy**. *Zamolodchikov periodicity and integrability*.

We call a quiver Zamolodchikov periodic (resp., Zamolodchikov integrable) if the values of the associated  $T$ -system at each vertex are periodic (resp., satisfy a linear recurrence). It has been shown by Keller that quivers obtained as products of two Dynkin diagrams are Zamolodchikov periodic. We prove that a quiver is Zamolodchikov periodic if and only if it admits a strictly subadditive labeling. Next, we show that if a quiver is Zamolodchikov integrable, then it admits a subadditive labeling. We classify all quivers admitting a subadditive or a strictly subadditive labeling. Finally, we concentrate on the quivers of type  $\hat{A} \otimes A$ . In this case, we express the coefficients of the recurrences in terms of the partition functions for domino tilings of a cylinder. (Received July 18, 2016)