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**Boris Solomyak** and **Konstantin Medynets\*** (medynets@usna.edu). *A Second Order Ergodic Theorem for Self-Similar Tiling Systems.*

We consider infinite measure-preserving non-primitive self-similar tiling systems in Euclidean space  $\mathbb{R}^l$ . We establish the second-order ergodic theorem for such systems. The speed of convergence is determined by the Hausdorff dimension of a graph-directed set associated to the substitution rule. (Received January 26, 2014)