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**N. Brodskiy\*** (brodskiy@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37996, and **J. Higes**. *Asymptotic dimension of tree-graded spaces*.

Tree-graded spaces were introduced and studied by C. Drutu and M. Sapir. Given a metric space  $X$  of finite asymptotic dimension  $\text{asdim}X \leq n$ , we consider a quasi-isometric invariant of the space called dimension function. The space  $X$  is said to have asymptotic Assouad-Nagata dimension  $\text{asdim}_{AN}X \leq n$  if there is a linear dimension function in dimension  $n$ . We estimate dimension function of a tree-graded space using dimension functions of its pieces. As a corollary we find the asymptotic Assouad-Nagata dimension of the free product of finitely generated infinite groups:  $\text{asdim}_{AN}(G * H) = \max\{\text{asdim}_{AN}(G), \text{asdim}_{AN}(H)\}$ . (Received September 03, 2009)