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Summary: We consider 6d $\mathcal{N} = (2,0)$ theory on $N$ M5-branes, together with a 4d defect labeled by a Young diagram $Y$ specifying its global symmetry $G_Y$. A recent conjecture states that a compactification of this system leads to a 2d theory with W-algebra symmetry depending on $Y$. We provide a check of the conjecture by reproducing the level of the current subalgebra $\hat{G}_Y$ of this W-algebra from the property of the 4d defect.

MSC:

81T13 Yang-Mills and other gauge theories in quantum field theory
81T60 Supersymmetric field theories in quantum mechanics
81T40 Two-dimensional field theories, conformal field theories, etc. in quantum mechanics
81R10 Infinite-dimensional groups and algebras motivated by physics, including Virasoro, Kac-Moody, W-algebras and other current algebras and their representations
81T30 String and superstring theories; other extended objects (e.g., branes) in quantum field theory
20C35 Applications of group representations to physics and other areas of science
81R05 Finite-dimensional groups and algebras motivated by physics and their representations

Keywords:
supersymmetric gauge theory; conformal and W symmetry; brane dynamics in gauge theories; M-theory

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References:
