Gomis, Joaquim; Simón, Joan; Ramallo, Alfonso V.; Townsend, Paul K.
Supersymmetric baryonic branes. (English) [Zbl 0957.81077]

Summary: We derive an energy bound for a ‘baryonic’ D5-brane probe in the AdS$_5 \times S^5$ background near the horizon of $N$ D3-branes. Configurations saturating the bound are shown to be 1/4 supersymmetric $S^5$-wrapped D5-branes with $N$ singularities at arbitrary positions. Previous results for $N$ coincident singularities are recovered as a special case. We derive a similar energy bound for a ‘baryonic’ M5-brane probe in the background of $N$ M5-branes. Configurations saturating the bound are again 1/4 supersymmetric and, in the AdS$_7 \times S^4$ near-horizon limit, provide a worldvolume realization of the ‘baryon string’ vertex of the $(2,0)$-supersymmetric six-dimensional conformal field theory on coincident M5-branes. For the full M5-background we find a worldvolume realization of the Hannany-Witten effect in M-theory.

MSC:
81T60 Supersymmetric field theories in quantum mechanics
81T30 String and superstring theories; other extended objects (e.g., branes) in quantum field theory
81T40 Two-dimensional field theories, conformal field theories, etc. in quantum mechanics
83E30 String and superstring theories in gravitational theory

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