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MHV amplitude around regular polygonal limit

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We discuss the MHV amplitude/null-polygonal Wilson loop of $\math{cal}N = 4$ SYM at strong coupling. The amplitude/Wilson loop is evaluated by the area of minimal surfaces in AdS, which are analyzed by integral equations of the thermodynamic Bethe ansatz (TBA) type. When the surfaces are embedded in AdS_3 or AdS_4, the integral equations are identified with the usual TBA equations of a two-dimensional integrable model called homogeneous sine-Gordon (HSG) model. The HSG model is obtained by an integrable deformation of a coset CFT. In special cases, the associated TBA system reduces to simpler ones for perturbed diagonal coset CFTs/(W-)minimal models. Based on these facts, we derive an analytic expansion of the amplitude/Wilson loop around the limit where the Wilson loop becomes regular polygonal.

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