

Surface Defect in $\mathcal{N} = 4$ SYM and Integrability



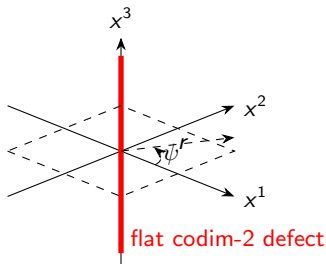
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Based on the work with Adolfo Holguin from Trinity College Dublin

Defect insertion $\leftrightarrow$ Singular classical config./vev for the fields.

$\langle \mathcal{O}(x) \rangle \neq 0$ any more.

$\langle \mathcal{O}(x) \rangle \propto \langle \mathcal{O} | \mathcal{D} \rangle$ where $|\mathcal{D}\rangle$ is the state corresponding to the defect.



Can we understand the integrability of the defect BCs from the integrability of $|\mathcal{D}\rangle$ from the integrable spin chain ($\sim$ anomalous dimension op. Γ) view point for $\mathcal{N} = 4$ SYM?

Answer: Yes! $|\mathcal{D}\rangle$ satisfies the integrability condition as the boundary state.