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Multipoint correlators on the supersymmetric Wilson line defect CFT

One dimensional CFTs are an exceptional laboratory in which we can test novel techniques in order to solve higher dimensional CFTs. They are also relevant from an holographic point of view, as in the case of the Wilson line defect in 4d $N=4$ Super Yang-Mills, which has an AdS_2 holographic dual. In this context, we focus on an under-explored subject: higher-point correlation functions. At weak coupling we developed a recursion formula that encodes n -point functions of all single-trace scalar operators. Interestingly, a class of these correlators is annihilated by a special set of differential operators, constraint that we conjectured to hold non-perturbatively and to be a multipoint extension of the superconformal Ward identities satisfied by the four-point functions. This study is a first step in the direction of a multipoint conformal bootstrap program, which could be a powerful tool for solving conformal field theory in the near future.

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