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Shamindra Kumar Ghosh* (shamindra.k.ghosh@vanderbilt.edu), 2000 24th Avenue South, Apartment G48, Nashville, TN 37212. *Planar algebra of group-type subfactors.*

We describe the planar algebra of: (i) the *Bisch-Haagerup subfactors*, namely, $P^H \subset P \rtimes K$ where two finite groups H and K act outerly on a II_1 -factor P , (ii) given a finite set $\{\theta_i\}_{i \in I}$ of automorphisms of a II_1 factor N , the *diagonal subfactor* $N \subset M_I(N)$ where an element $x \in N$ sits in $M_I(N)$ diagonally with the i -th diagonal element being given by $\theta_i(x)$. Several correspondences between properties of the group and that of subfactors, namely, strong amenability, amenability and property (T) were derived for both cases. The planar algebra heavily depends on the cocycle obstruction to lifting the subgroup G in $Out(P)$ (resp., $Out(N)$) generated by H and K in case (i) (resp., θ_i in $Out(N)$ in case (ii)). In case (i), if we assume that the group generated by H and K in $Aut(P)$ intersects trivially with $Inn(P)$, (equivalently, the obstruction is trivial), then the planar algebra has an interesting similarity with IRF models in Statistical Mechanics. In case (ii), when the obstruction is trivial, this planar algebra matches with Jones's example of planar algebra associated to finitely generated group. This is a joint work with Dietmar Bisch and Paramita Das. (Received September 16, 2008)