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<tr><th>abstract</th><td>We consider orbit configuration spaces $C_n^G(S)$, where S is a surface obtained out of a closed orientable surface $\bar{S}$ by removing a finite number of points (eventually none) and G is a finite group acting freely continuously on S. We prove that the fibration $\pi_{n,k} : C_{n}^G(S) \to C_k^G(S)$ obtained by projecting on the first k coordinates is a rational fibration. As a consequence, the space $C_{n}^G(S)$ has a Sullivan model $A_{n,k}=\Lambda V_{C_k^G(S)}\otimes \Lambda V_{C_{n-k}^G(S_{G,k})}$ fitting in a cdga sequence: $\Lambda V_{C_k^G(S)}\to A_{n,k} \to \Lambda V_{C_{n-k}^G(S_{G,k})},$ where ΛV_X denotes the minimal model of X, and $C_{n-k}^G(S_{G,k})$ is the fiber of $\pi_{n,k}$. We show that this model is minimal except for some cases when $S\simeq S^2$ and compute in all the cases the higher ψ-homotopy groups (related to the generators of the minimal model) of $C_n^G(S)$. We deduce from the computation that $C_n^G(S)$ having finite Betti numbers is a rational $K(\pi,1)$, i.e its minimal model and 1-minimal model are the same (or equivalently the ψ-homotopy space vanishes in degree grater then 2), if and only if S is not homeomorphic to S^2. In particular, for S not homeomorphic to S^2, the minimal model (isomorphic to the 1-minimal model) is entirely determined by the Malcev Lie algebra of $\pi_1 C_n^G(S)$. When $A_{n,k}$ is minimal, we get an exact sequence of Malcev Lie algebras $0\to L_{C_{n-k}^G(S_{G,k})}\to L_{C_{n}^G(S)}\to L_{C_k^G(S)}\to 0$, where L_X is the Malcev Lie algebra of π_1X. For $S \varsubsetneq \bar{S}=S^2$ and G acting by orientation preserving homeomorphism, we prove that the cohomology ring of $C_n^G(S)$ is Koszul, and that for some of these spaces the minimal model can be obtained out of a Cartan-Chevally-Eilenberg construction applied to graded Lie algebra computed in an earlier work.</td></tr>
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