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Intersecting finite index subgroups of a group

Let G be a finitely generated group. For a natural number n , let $i(n)$ be the index of the intersection of all subgroups of G with index at most n . In joint work with Bou-Rabee, Kassabov and Matucci, we analyze $i(n)$ in a number of examples, including free groups and some linear groups. We'll also explain how the growth rate of $i(n)$ determines the Hausdorff dimension of G in a profinite metric.