José Ignacio Cogolludo* (jicogo@posta.unizar.es), Depto. de Mathemáticas, Universidad de Zaragoza, Zaragoza, Spain. *Alexander Modules, Derived Series and Hyperplane Arrangements.*

Let $\mathcal{C} \subset \mathbb{P}^2$ be a projective plane curve with irreducible components $\mathcal{C}_0, \mathcal{C}_1, ..., \mathcal{C}_r$. Let us denote its complement $\mathbb{P}^2 \setminus \mathcal{C}$ by $X_\mathcal{C}$.

Let G denote the fundamental group of $X_\mathcal{C}$. The derived series associated with this group is recursively defined as follows: $G^{(0)} := G$, $G^{(n)} := (G^{(n-1)})' = [G^{(n-1)}, G^{(n-1)}]$, $n \geq 1$, where G' is the derived subgroup of G, i.e. the subgroup generated by $[a,b] := aba^{-1}b^{-1}$, $a, b \in G$.

Among others objects, the derived series produces the Alexander module $M := G'/G''$, which is a G/G'-module. We will define a certain filtration on M which allows one to define and calculate invariants associated with Characteristic Varieties. As an application to hyperplane arrangements, an invariant of ordered arrangements can be produced. We give an alternative proof of Rybnikov's result.