1167-13-287   **Aarti Patle*** (`patleaarti48@gmail.com`), Nagpur, India, and **Jyoti Singh**. *Generalized Eulerian $\mathcal{D}$-modules in char $p > 0$.*

Let R be a polynomial ring in n indeterminates with coefficients in the field K of characteristic $p > 0$ and $\mathcal{D}$ be the ring of differential operators over R. In this paper, we introduce the notion of generalized Eulerian $\mathcal{D}$-modules for characteristic $p > 0$ and establish their properties. We show that if $\mathcal{T}$ is any graded Lyubeznik functor on the category of modules over R, then $\mathcal{T}(R)$ is a generalized Eulerian $\mathcal{D}$-module. As a consequence, we prove that all socle elements of module $H_{\mathfrak{m}}^i(\mathcal{T}(R))$ are concentrated in degree $-n$, where $\mathfrak{m}$ is an irrelevant maximal ideal of R. (Received March 09, 2021)

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