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Aarti Patle* (patleaarti48@gmail.com), Visvesvaraya National Institute of Technology, South Ambazari Road , Nagour, Nagpur, 440010, India, and **Jyoti Singh**. *Generalized Eulerian graded \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 January 27, 2021)