Article

MR2139266 (2006c:13035) 13G05 (13A15 13F05)

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Integral domains whose simple overrings are intersections of localizations. (English summary)

J. Algebra Appl. **4** (2005), *no. 2*, 195–209.

An integral domain R is called a QQR-domain if each overring of R is an intersection of localizations of R. A Prüfer domain is a QQR-domain, but not conversely. In this paper, the authors introduce and study the related concepts of sQQR- (resp., fQQR-) domains, i.e., each simple (resp., finitely generated) overring of R is an intersection of localizations of R. If R is integrally closed, they show that R is an sQQR-domain if and only if it is an fQQR-domain, if and only if it is a Prüfer domain. They also show that under suitable finiteness conditions an sQQR-domain is a Prüfer domain. However, examples are given of sQQR-domains which are not QQR-domains.

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