

## SP-DOMAINS ARE ALMOST DEDEKIND — A STREAMLINED PROOF

MALIK TUSIF AHMED

*Abdus Salam School of Mathematical Sciences*  
*GC University, 68-B New Muslim Town*  
*Lahore, Pakistan*

**e-mail:** tusif.ahmad92@gmail.com  
tusif.ahmed@sms.edu.pk

### Abstract

Let  $D$  be a domain. By [4],  $D$  has "property SP" if every ideal of  $D$  is a product of radical ideals. It is natural to consider property SP after studying Dedekind domains, which involve factoring ideals into prime ideals. In their article [4] Vaughan and Yeagy prove that a domain having property SP is an almost Dedekind domain. We give a very short and easy proof of this result.

**Keywords:** SP-domain, almost Dedekind domain, discrete valuation domain.

**2010 Mathematics Subject Classification:** Primary 13A15, Secondary 13F15.

### REFERENCES

- [1] M.T. Ahmed and T. Dumitrescu, *SP-rings with zero-divisors*, *Comm. Algebra* **45** (3) (2017) 4435–4443.  
doi:10.1080/00927872.2016.1267184
- [2] R. Gilmer, *Multiplicative Ideal Theory*, Queen's papers Pure Appl. Math. **90** (Queen's University, Kingston, Ontario, 1992).
- [3] B. Olberding, *Factorization into radical ideals*, *Arithmetical properties of commutative rings and monoids* (S. Chapman, Ed.), *Lecture Notes in Pure Appl. Math.* **241** (Chapman & Hall, 2005) 363–377.  
doi:10.1201/9781420028249
- [4] N.H. Vaughan, R.W. Yeagy, *Factoring ideals into semiprime ideals*, *Canad. J. Math.* **XXX** (6) (1978) 1313–1318.  
doi:10.4153/CJM-1978-108-5

Received 29 August 2019

Revised 1 October 2019

Accepted 13 January 2020