

Prime ideals in rings of power series and polynomials

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Abstract: We describe the partially ordered sets that arise as prime spectra of homomorphic images of commutative Noetherian rings of power series and polynomials of dimension ≤ 2 . Let R be a countable one-dimensional Noetherian domain with infinitely many maximal ideals, let k be a countable field, and let x, y, z be indeterminates. We characterize the prime spectra of $R[y][[x]]/Q$, of $R[[x]][y]/Q$, and of $k[[x]][z, y]/Q$, for Q a height-one prime ideal of the corresponding ring such that $x \notin Q$. The characterization depends on the choice of Q . We may discuss other cases for the ring R . This is primarily joint work with Ela Celikbas and Christine Eubanks-Turner.

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