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Generalized going-down homomorphisms of commutative rings. (English. English summary)

Commutative ring theory and applications (Fez, 2001), 143–163,
Lecture Notes in Pure and Appl. Math., 231, Dekker, New York, 2003.
Summary: “Sufficient conditions are given for a (unital) homomorphism $f: A \rightarrow B$ of (commutative) rings to be a chain morphism, in the sense that ${}^a f: \text{Spec}(B) \rightarrow \text{Spec}(A)$ permits the covering of chains of arbitrary cardinality. One such sufficient condition is that f satisfy lying-over, ${}^a f$ be open in the flat (resp., Zariski) topology, and each reduced fiber of ${}^a f$ be quasilocal (resp., an integral domain). Sufficient conditions are given for f to have the generalized going-down property GGD (that is, ‘going-down’ predicated for chains of arbitrary cardinality). Typical of such sufficient conditions are the following: f is a chain morphism and B is quasilocal treed; f satisfies going-down and either the reduced fibers of ${}^a f$ are integral domains or A is a going-down ring. ‘Universally going-down’ is equivalent to ‘universally GGD’; in particular, if f is flat, then f satisfies GGD. The universally subtrusive homomorphisms are the same as the universally chain morphisms, and these descend the GGD property.”

{For the entire collection see MR2029811 (2004h:13002)}

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