

# Commutative Ring Theory Days 2010

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## ON DEDEKIND DOMAINS AND KRULL MONOIDS WITH INFINITE CLASS GROUP

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The arithmetic of a Dedekind domain and, more generally, a Krull monoid is determined to a large extent by the distribution of (v-)prime ideals over the classes of the ideal (divisor) class group.

In case the class group is non-trivial the domain/monoid is not factorial, and various quantities have been studied to describe the phenomena of non-uniqueness that can arise.

These quantities are finite if the number of ideal classes containing prime ideals is finite (thus, in particular, if the class group is finite); if this is not the case, they are typically infinite. Yet, they are not always infinite, or at least not all of them are infinite; and in these scenarios phenomena that are distinct from yet closely related to the 'finite case' can be observed.

We present some results, with a strong emphasize on the case that the class group is cyclic and infinite, which illustrate this.

This is joint work with A. Geroldinger, D.J. Gryniewicz, and G.J. Schaeffer.

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