ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

2. Algebra

1991 MS Classification: 03E72, 13A15
Murali, V., Rhodes University, Grahamstown, South Africa

On Krull Intersection Theorem of Fuzzy Ideals

A fuzzy ideal of a commutative ring R is a mapping $\mu : R \to I$, the unit interval with the usual ordering, satisfying $\mu(r-s) \geq \mu(r) \wedge \mu(s)$ and $\mu(rs) \geq \mu(r) \vee \mu(s)$. For $0 < \lambda \leq 1$, r^λ is a fuzzy point if $r^\lambda(s) = \begin{cases} \lambda & \text{if } s = r \\ 0 & \text{if } s \neq r \end{cases}$
First we extend the notions of prime ideal, primary and radical of a fuzzy ideal, using fuzzy points. Secondly we characterise a primary decomposition of a fuzzy ideal. We give some applications to Nakayama's Lemma and Krull Intersection Theorem. This is a joint work with B. B. Makamba of University of Fort Hare, Alice, South Africa.
Reference: D. S. Malik and J. N. Mordeson, Fuzzy primary representations of fuzzy ideals. Inf. Sci. **55** (1991), 151 -165