

ON GRADED DIVISION RINGS

JAVIER SÁNCHEZ SERDÀ

ABSTRACT. Given an associative ring with unit, P. M. Cohn characterized the homomorphisms from R to a division ring by means of a structure defined over the set of square matrices over R . P. Malcolmson described alternative ways of determining such homomorphisms using functions induced from the notions of rank of a matrix and of dimension over a division ring.

In this work, we show that these characterizations can be implemented in the context of graded rings. More precisely, given a ring R graded by a group G we adapt the theory of Cohn and Malcolmson to determine the different graded homomorphisms from R to G -graded division rings.

This is a joint work with Daniel E. N. Kawai.

DEPARTAMENTO DE MATEMÁTICA - IME, UNIVERSIDADE DE SÃO PAULO
Email address: `jsanchez@ime.usp.br`