Mathematical Ideals in Coimbra

September 2012

Tuesday, September 25: 16.30-18

A short history of ring ideals, modules, normal subgroups, boolean filters et similia in classical modern algebra, (they are all "the same thing" in a way...) , and of their calculus: product, residuals, etc.

Wednesday, September 26: 14-17

Short, crash course in Universal Algebra (notations and key notions:1/2 hour). Generalization of normal subalgebras and ideals in universal algebras: (Higgins) in Omega-groups,(Magari) in functionally complete universal algebras, (Ursini) in general pointed varieties.The (pointed) categorical generalizations of normal subobject, of ideals, and of clots. Bonus: HANPs= hints at the non-pointed case.

Thursday, September 27: 9-12

A useful property for ideals to be normal in the pointed case: subtractive varieties, and their properties, and subtractive categories. The commutator of ideals, in varieties. A Conceptual Ladder of notions (pointed case) for varieties and –in some instances— for categories:

- ■ subtractive (S) (Theorem: <==> 0-permutable congruences);
- ■ 0-regular (0-R);
- ■ ideal determined (ID) (Theorem: <==> 0-R+S) ;
- ■ 0-coherent (0-Coh)(Theorem : <==> ID + Mal'cev)
- ■ classically ideal determined (CID)(Theorem: <==> semiabelian)
- ■ abelian

Bonus: HANPs.

Friday, september 28: 14-16

Several articulations of "coherence". Characterizing varieties of Abelian (Omega-) groups in ideal theoretic terms.

THE END