

Report

on the activities associated in 2013 to the project
PN-II-RU-TE-2011-3-0065 (contract 47/05.10.2011)

Functors on Module Categories

Budget: 249.998,43 lei

(A) Activities

We continued the activities described in the previous reports. The papers finalized in 2013 are the following:

(I) Functors on module categories.

1. U. Albrecht, **S. Breaz**: A note on self-small modules over RM-domains, *Journal of Algebra and Its Applications*, Vol. 13, No. 01 1350073 (8 pages) (2014).
2. **C. Vâlculescu, F. Pop**: A note on direct products and Ext1 contravariant functors, acceptată de *Bulletin of the Malaysian Mathematical Science Society*, <http://www.emis.de/journals/BMMSS/pdf/acceptedpapers/2013-04-086-R1.pdf>
3. **S. Crivei**: Neat and coneat submodules of modules over commutative rings, *Bull. Aust. Math. Soc.*, doi:10.1017/S0004972713000622
4. **S. Breaz**, G. Călugăreanu, P. Danchev, T. Micu: Nil-clean matrix rings, *Linear Algebra and Applications*, 439, no. 10, 3115–3119 (2013). DOI: 10.1016/j.laa.2013.08.027
5. **S. Breaz**: A Banach Contraction Principle for Abelian Groups, accepted by *Fixed Point Theory*.

(II) Torsion and cotorsion classes

1. **G. C. Modoi**, The dual of Brown representability for homotopy categories of complexes, *Journal of Algebra*, Volume 392 (15), 115–124 (2013).
2. **C. Pelea**: Hyperrings and α^* -relations. A general approach, *Journal of Algebra*, 383, 104–128 (2013).
3. **S. Breaz**, G. Călugăreanu, P. Schultz: Subgroups which admit extensions of homomorphisms, *Forum Math.*, DOI: 10.1515/forum-2013-0089
4. **C. Pelea**, I. Purdea, L. Stanca: Fundamental relations in multialgebras. Applications, accepted by *European Journal of Combinatorics*, DOI: 10.1016/j.ejc.2014.08.015.

(B) Conferences, workshops, research seminars

1. **S. Breaz**: *Joint International Meeting of the AMS and the Romanian Mathematical Society*, June 27 - 30, 2013, Alba Iulia, Romania (invited talk at the special session Commutative Algebra: A global Baer-Kaplansky Theorem)
2. **S. Breaz**: *Rings, categories and Hopf algebras*, dedicated to the 70th birthday of Professor Constantin Nastasescu, University of Bucharest on May 18 and 19, 2013 (talk: On Σ -pure injective modules)
3. **S. Crivei**: *Rings, categories and Hopf algebras*, dedicated to the 70th birthday of Professor Constantin Nastasescu, University of Bucharest on May 18 and 19, 2013 (talk: One-sided exact categories)
4. **S. Breaz**: *Algebra Symposium*, Babe-Bolyai University of Cluj Napoca, Romania, April 19-20, 2013; (talk: On sigma-pure injective modules).

5. **C. Vălculescu:** *Algebra Symposium*, Babe-Bolyai University of Cluj Napoca, Romania, April 19-20, 2013; (talk: A note on direct products and Ext¹ contravariant functors).
6. **G. C. Modoi:** *Algebra Symposium*, Babe-Bolyai University of Cluj Napoca, Romania, April 19-20, 2013
7. **S. Crivei:** *Joint International Meeting of the AMS and the Romanian Mathematical Society*, Alba Iulia, Romania, June 27 - 30, 2013 (talk: Finitely accessible categories versus module categories).
8. **G. C. Modoi:** *Joint International Meeting of the AMS and the Romanian Mathematical Society*, Alba Iulia, Romania, June 27 - 30, 2013.
9. **S. Breaz:** *Classical Aspects of Ring Theory and Module Theory*, Bedlewo, Poland, July 14-20, 2013. (talk: Σ -pure injective modules)
10. **G. C. Modoi:** *Classical Aspects of Ring Theory and Module Theory*, Bedlewo, Poland, July 14-20, 2013. (talk: A module theoretic translation of Brown representability for homotopy categories)
11. **F. Pop:** *Joint International Meeting of the AMS and the Romanian Mathematical Society*, Alba Iulia, Romania, June 27 - 30, 2013.
12. **S. Crivei:** *Recent Trends in Rings and Algebras*. Murcia, June 3-7, 2013 (talk: Mitchell Lemma and Gabriel-Popescu Theorem)
13. **S. Breaz:** *Some Trends in Algebra*, Prague, September 3-6, 2013 (talk: On Σ -pure injective modules)
14. **G. C. Modoi:** *Some Trends in Algebra*, Prague, September 3-6, 2013 (talk: Some applications of deconstructibility in triangulated categories)
15. **F. Pop:** *Some Trends in Algebra*, Prague, September 3-6, 2013 (talk: On direct products and Ext¹ contravariant functors)
16. **C. Pelea:** *9th International Conference on Applied Mathematics (ICAM 9)*, September 25-28, 2013, Baia Mare, Romania (talk: On some particular equivalence relations of multialgebras)
17. **S. Breaz:** *Algebra Seminar*, Charles Univ. Prague, October 21, 2013 (talk: Subgroups which admit extensions of homomorphisms)
18. **C.G. Modoi:** *Algebra Seminar*, Charles Univ. Prague, October 21, 2013 (talk: On a theorem of G. Bergman).