

# On the properties of topological rings and topological algebras with sandwich multiplication

Mart Abel

University of Tartu/University of Tallinn  
Tartu/Tallinn, Estonia

Let  $R$  be a ring (or an algebra) and  $\epsilon$  an arbitrary element of  $R$ . Define a new multiplication  $\cdot_\epsilon$  on  $R$  by  $a \cdot_\epsilon b := a\epsilon b$ . Then  $R$  becomes again a ring (respectively, an algebra) with respect to this new multiplication. It is shown that several results of [1] hold without the restriction that the algebra under consideration should be a Banach algebra. Most important fact is, that several results of [1] will remain true in case of rings and algebras without any topology or in the case the topology on rings and algebras under consideration has only the properties that the invertibility is continuous or the set of (topologically) invertible elements is open in the given topology.

## References

- [1] R. A. Kamyabi-Gol and M. Janfada, Banach algebras related to the elements of the unit ball of a Banach algebra, *Taiwanese J. Math.* 12, 2008, 1769–1779.