



Banach J. Math. Anal. 6 (2012), no. 1, 155–160

BANACH JOURNAL OF MATHEMATICAL ANALYSIS

ISSN: 1735-8787 (electronic)

www.emis.de/journals/BJMA/

STRONG ARENS IRREGULARITY OF BILINEAR MAPPINGS AND REFLEXIVITY

ALI AKBAR KHADEM-MABOUDI^{1*} AND HAMID REZA EBRAHIMI VISHKI²

Communicated by M. Abel

ABSTRACT. We provide a sufficient condition for strong (Arens) irregularity of certain bounded bilinear maps, which applies in particular to the adjoint of Banach module actions. We then apply our result to improve several known results concerning to the relation between Arens regularity of certain Banach module actions and reflexivity.

¹DEPARTMENT OF BIostatISTICS, FACULTY OF PARAMedICAL SCIENCES, SHAHID BEHESHTI UNIVERSITY OF MEDICAL SCIENCES, TEHRAN, IRAN.

E-mail address: maboudi_3@yahoo.com

² DEPARTMENT OF PURE MATHEMATICS AND CENTRE OF EXCELLENCE IN ANALYSIS ON ALGEBRAIC STRUCTURES (CEAAS), FERDOWSI UNIVERSITY OF MASHHAD, P.O. BOX 1159, MASHHAD 91775, IRAN.

E-mail address: vishki@um.ac.ir

Date: Received: 19 October 2011; Accepted: 21 November 2011.

* Corresponding author.

2010 *Mathematics Subject Classification.* Primary 46H25; Secondary 47A07.

Key words and phrases. Arens product, bilinear map, second dual, topological center, Banach module action.