What does Birkhoff–James orthogonality know about the norm?

By LJILJANA ARAMBAŠIĆ (Zagreb), ALEXANDER GUTERMAN (Moscow),
BOJAN KUZMA (Koper), RAJNA RAJIĆ (Zagreb) and SVETLANA ZHILINA (Moscow)

Abstract. It is shown that Birkhoff–James orthogonality knows everything about the smooth norms in reflexive Banach spaces and can also compute the dimensions of the underlying normed spaces.

LJILJANA ARAMBAŠIĆ
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE
UNIVERSITY OF ZAGREB
BIJENIČKA CESTA 30
10000 ZAGREB
CROATIA

ALEXANDER GUTERMAN &
SVETLANA ZHILINA
DEPARTMENT OF MATHEMATICS
AND MECHANICS
LOMONOSOV MOSCOW STATE UNIVERSITY
MOSCOW, 119991
RUSSIA
AND
MOSCOW CENTER FOR CONTINUOUS
MATHEMATICAL EDUCATION
MOSCOW, 119002
RUSSIA
AND
MOSCOW CENTER FOR FUNDAMENTAL
AND APPLIED MATHEMATICS
MOSCOW, 119991
RUSSIA

BOJAN KUZMA
UNIVERSITY OF PRIMORSKA
GLAGOLJAŠKA 8
SI-6000 KOPER
SLOVENIA
AND
IMFM
JADRANSKA 19
SI-1000 LJUBLJANA
SLOVENIA
AND
MOSCOW CENTER FOR FUNDAMENTAL
AND APPLIED MATHEMATICS
MOSCOW, 119991
RUSSIA

RAJNA RAJIĆ
FACULTY OF MINING, GEOLOGY
AND PETROLEUM ENGINEERING
UNIVERSITY OF ZAGREB
PIEROTTIJEVA 6
10000 ZAGREB
CROATIA