Erratum to the paper
“On the Kaczmarz algorithm of approximation
in infinite-dimensional spaces”
(Studia Math. 148 (2001), 75–86)

by

STANISŁAW KWAPIEŃ (Warszawa) and JAN MYCIELSKI (Boulder, CO)

There is an error in the proof of Proposition 2 in the above mentioned paper. The arguments on page 83, lines 13–10 from the bottom, which show that \( \sum_{n=0}^{\infty} |c_n| < \infty \) leads to a contradiction, are false. However, this fact is true and it can be justified as follows:

Since the function \( 1/F(z) = \sum_{k=0}^{\infty} c_k z^k \) is continuous on \( \mathbb{D} \cup \mathbb{T} \), not identically zero, and the sequence \( (z_0^k) \) is dense in \( \mathbb{T} \), there exists an integer \( l \) such that

\[
\lim_{r \to 1^-} (1 - r) F(r z_0^l) = \lim_{r \to 1^-} (1 - r) \sum_{k=0}^{\infty} h(z_0^k) z_0^l r^k = 0.
\]

For each continuous function \( f \) on \( \mathbb{T} \) we have

\[
\lim_{r \to 1^-} (1 - r) \sum_{k=0}^{\infty} f(z_0^k) r^k = \int_{\mathbb{T}} f(z) \, dz.
\]

Indeed, this equality holds true for each function \( f(z) \equiv z^m \) where \( m \) is an integer, the family of such functions is linearly dense in \( C(\mathbb{T}) \), and we have \( |(1 - r) \sum_{k=0}^{\infty} f(z_0^k) r^k| \leq ||f|| \) for each \( 0 < r < 1 \). As a result we find that \( \int_{\mathbb{T}} h(z) z^l \, dz = \hat{h}(-l) = 0 \). This contradicts the assumption that \( \hat{h}(m) = |\hat{b}(m)|^2 \neq 0 \) for each integer \( m \).

Institute of Mathematics
Warsaw University
Banacha 2
02-097 Warszawa, Poland
E-mail: kwapstan@mimuw.edu.pl

Department of Mathematics
University of Colorado
Boulder, CO 80309-0395, U.S.A.
E-mail: jmyciel@euclid.colorado.edu

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