Publ. Math. Debrecen 106/1-2 (2025), 147–168 DOI: 10.5486/PMD.2025.9864

On extensions of D(4)-triples by adjoining smaller elements

By MARIJA BLIZNAC TREBJEŠANIN (Split) and PAVAO RADIĆ (Split)

Abstract. This paper examines the problem of obtaining a D(4)-quadruple by adding a smaller element to a D(4)-triple. We prove some relations between elements of observed hypothetical D(4)-quadruples under which a conjecture of the uniqueness of such an extension holds. Also, it is shown that for any D(4)-triple, there are at most two extensions with a smaller element.

MARIJA BLIZNAC TREBJEŠANIN & PAVAO RADIĆ
FACULTY OF SCIENCE
UNIVERSITY OF SPLIT
RUDERA BOSKOVICA 33
21000 SPLIT
CROATIA

 $Mathematics\ Subject\ Classification:\ 11D09,\ 11B37,\ 11J68.$

Key words and phrases: Diophantine m-tuples, Pellian equations, hypergeometric method.