

An online bin-packing problem with an underlying ternary structure

Helmut Prodinger 

*Mathematics Department, Stellenbosch University, 7602 Stellenbosch, South Africa and
NITheCS (National Institute for Theoretical and Computational Sciences), South Africa*

Received 19 September 2021, accepted 30 June 2023, published online 12 June 2024

Abstract

Following an original idea by Knödel, an online bin-packing problem is considered where the large items arrive in double-packs. The dual problem where the small items arrive in double-packs is also considered. The enumerations have a ternary random walk flavour, and for the enumeration, the kernel method is employed.

Keywords: Knödel walks, third-order recursion, kernel method, coefficient extraction, state diagram.

Math. Subj. Class. (2020): 05A15, 68R05

Spletni problem pakiranja v koše s ternarno strukturo

Helmut Prodinger 

*Mathematics Department, Stellenbosch University, 7602 Stellenbosch, South Africa and
NITheCS (National Institute for Theoretical and Computational Sciences), South Africa*

Prejeto 19. septembra 2021, sprejeto 30. junija 2023, objavljeno na spletu 12. junija 2024

Povzetek

Sledeč izvorno Knödlovi ideji se spletni problem pakiranja v koše pojavi takrat, ko veliki predmeti prispejo v dvojnih paketih. Obravnavamo tudi dualni problem, kjer v dvojnih paketih prispejo majhni predmeti. Naštevanja imajo pečat ternarnega naključnega sprehanja, za naštevanje pa se uporablja metoda jedra.

Ključne besede: Knödlovi sprehodi, rekurzija tretjega reda, metoda jedra, ekstrakcija koeficienta, diagram stanja.

Math. Subj. Class. (2020): 05A15, 68R05
