



Also available at <http://amc-journal.eu>
ISSN 1855-3966 (printed ed.) ISSN 1855-3974 (electronic edn.)
ARS MATHEMATICA CONTEMPORANEA 12 (2017) 337–350

Saturation number of nanotubes

Niko Tratnik*

*Faculty of Natural Sciences and Mathematics, University of Maribor,
Koroška cesta 160, Maribor, Slovenia*

Petra Žigert Pleteršek

*Faculty of Chemistry and Chemical Engineering, University of Maribor,
Smetanova ulica 17, Maribor, Slovenia
Faculty of Natural Sciences and Mathematics, University of Maribor,
Koroška cesta 160, Maribor, Slovenia*

Abstract: In the present paper we are interested in the saturation number of closed benzenoid chains and certain families of nanotubes. The saturation number of a graph is the cardinality of a smallest maximal matching in the graph. The problem of determining the saturation number is related to the edge dominating sets and efficient edge dominating sets in a graph. We establish the saturation number of some closed benzenoid chains and C_4C_6 -tubes. Further, upper and lower bounds for the saturation number of armchair, zig-zag, $TUC_4C_8(S)$ and $TUC_4C_8(R)$ nanotubes are calculated.

Keywords: Saturation number, maximal matching, edge domination number, efficient edge dominating set, closed benzenoid chain, armchair nanotube, zig-zag nanotube, tubulene, $TUC_4C_8(S)$ nanotube, $TUC_4C_8(R)$ nanotube.

Math. Subj. Class.: 92E10, 05C70, 05C69

* *E-mail addresses:* niko.tratnik@gmail.com (Niko Tratnik), petra.zigert@um.si (Petra Žigert Pleteršek)

Dostopno tudi na <http://amc-journal.eu>
ISSN 1855-3966 (tiskana izd.) ISSN 1855-3974 (elektronska izd.)
ARS MATHEMATICA CONTEMPORANEA 12 (2017) 337–350

Nasičenostno število nanocevčic

Niko Tratnik*

*Faculty of Natural Sciences and Mathematics, University of Maribor,
Koroška cesta 160, Maribor, Slovenia*

Petra Žigert Pleteršek

*Faculty of Chemistry and Chemical Engineering, University of Maribor,
Smetanova ulica 17, Maribor, Slovenia
Faculty of Natural Sciences and Mathematics, University of Maribor,
Koroška cesta 160, Maribor, Slovenia*

Povzetek: V tem članku nas zanima nasičenostno število sklenjenih benzenoidnih verig in določenih družin nanocevčic. Nasičenostno število grafa je moč najmanjšega maksimalnega prirejanja v grafu. Problem določitve nasičenostnega števila je povezan s povezavnimi dominacijskimi množicami in učinkovitimi povezavnimi dominacijskimi množicami v grafu. Najdemo nasičenostno število sklenjenih benzenoidnih verig in C_4C_6 -cevčic. Nadalje, izračunamo zgornje in spodnje meje nasičenostnih števil naslanjača, cik-caka, $TUC_4C_8(S)$ in $TUC_4C_8(R)$ nanocevčic.

Ključne besede: Nasičenostno število, maksimalno prirejanje, povezavno dominacijsko število, učinkovita povezavna dominacijska množica, sklenjena benzenoidna veriga, nanocevka naslanjač, zig-zag nanocevčica, cevček, $TUC_4C_8(S)$ nanocevčica, $TUC_4C_8(R)$ nanocevčica.

Math. Subj. Class.: 92E10, 05C70, 05C69

* e-poštni naslovi: niko.tratnik@gmail.com (Niko Tratnik), petra.zigert@um.si (Petra Žigert Pleteršek)