Th $c(G) \leq \chi(\bar{G})$.

Proof $t = \chi(\bar{G})$

need to show $\alpha(G^r) \leq t^r$, for $r \geq 1$

$C : V(G) = \{1, \dots, t\}$

$C(v) = C(w) \Rightarrow (v, w) \in E$

$C(u_i) = i \in [t]$

$B = \{u_1, u_2, \dots, u_t\}$

$a \in I$ max indset in G^r

$a = (v_{i_1}, v_{i_2}, \dots, v_{i_r})$

$f : a \longrightarrow a' = (u_{j_1}, u_{j_2}, \dots, u_{j_r})$, $C(v_{i_k}) = C(u_{j_k})$ for all k

$a \neq b$, $a, b \in G^r$, $f(a) = f(b) \Leftrightarrow (a, b) \in E(G^r)$

$a \neq b$, $a, b \in I \Rightarrow f(a) \neq f(b)$

$\Downarrow$

$\alpha(G^r) \leq t^r$

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Place du Parc 23, 7000 Mons (Belgique) | Tél.: +32(0)65 37 31 11
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