# PHYSICAL REVIEW B

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Carbon substitution in $MgB_2$ single crystals: Structural and superconducting properties *(10 pages)* . . . . . 024533
S. M. Kazakov, R. Puzniak, K. Rogacki, A. V. Mironov, N. D. Zhigadlo, J. Jun, Ch. Soltmann, B. Batlogg, and J. Karpinski

## COMMENTS

Comment on "Sputtering transport theory: The mean energy" *(2 pages)* . . . . . 026101
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## ERRATA

Erratum: Lindemann criterion and vortex lattice phase transitions in type-II superconductors [Phys. Rev. B **69**, 024501 (2004)] *(1 page)* . . . . . 029901(E)
Jan Kierfeld and Valerii Vinokur

Erratum: Kinetic energy control in action-derived molecular dynamics simulations [Phys. Rev. B **68**, 064303 (2003)] *(1 page)* . . . . . 029902(E)
In-Ho Lee, Jooyoung Lee, and Sangsan Lee