Abstract. The energetic evaluations of graphite-to-diamond transition by electron irradiation are performed. The heat conduction problem is solved for the diamond synthesis when a pulse-periodic source of energy is located within a graphite cylinder; time dependences of temperature and pressure are found. It is shown, that the temperatures and pressures implemented in graphite are sufficient for graphite-to-diamond transition under electron bombardment.

Keywords: graphite, diamond, phase diagram

PACS numbers: 05.50+q, 75.10-b

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