Influence of temperature change on the shift of characteristic peaks in the Raman spectrum and electrical response of HSMG graphene

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HSMG (High Strength Metal Graphene) graphene is obtained on a liquid metal. Unlike CVD graphene, HSMG graphene exhibits semiconductor properties after heating at high temperatures[1]. Electrical measurements were carried out to indicate the effect of temperature changes on the change in the HSMG graphene resistance. The tests were carried out in temperature range from -20 to 40°C. The dependence between temperature change and position of the characteristic peaks on the Raman spectrum was also evaluated. The results of resistance measurements indicate that the temperature rise leads to decrease of resistance, and the change is about 7% in the studied range. Analysis of Raman spectra indicates the G peak shift to lower values of wavenumber as temperature increases.

References

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Acknowledgement

This work was supported by TECHMATSTRATEG1/347324/12/NCBR/2017