Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Heat transfer enhancement of water-based highly crumpled few-layer graphene nanofluids

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Set-up:

The positioning of the thermocouples is illustrated in Figure S_1, schematically. Thermocouples were installed at outer surface of the cylindrical tube in order to avoid boundary layer interruption originating from the thermocouple probe protruding into the conduit inner surface, as shown in Figure S_1. The boundary conditions used in the experiment was as follow. After expansion, there is a constant heat flux of 600 W provided by DC power supplies. Also, the inlet fluid rate was in the range of 1 to 16 Lit/min.

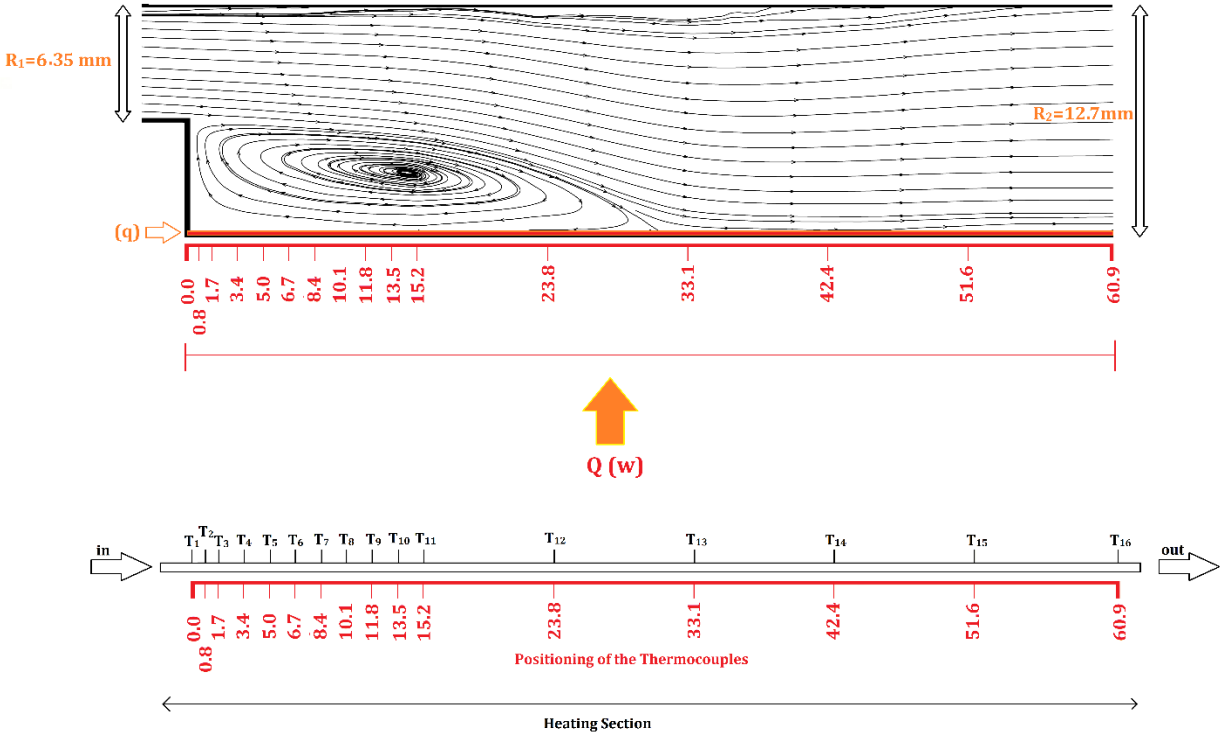

Figure S1. Schematic view of the test section.

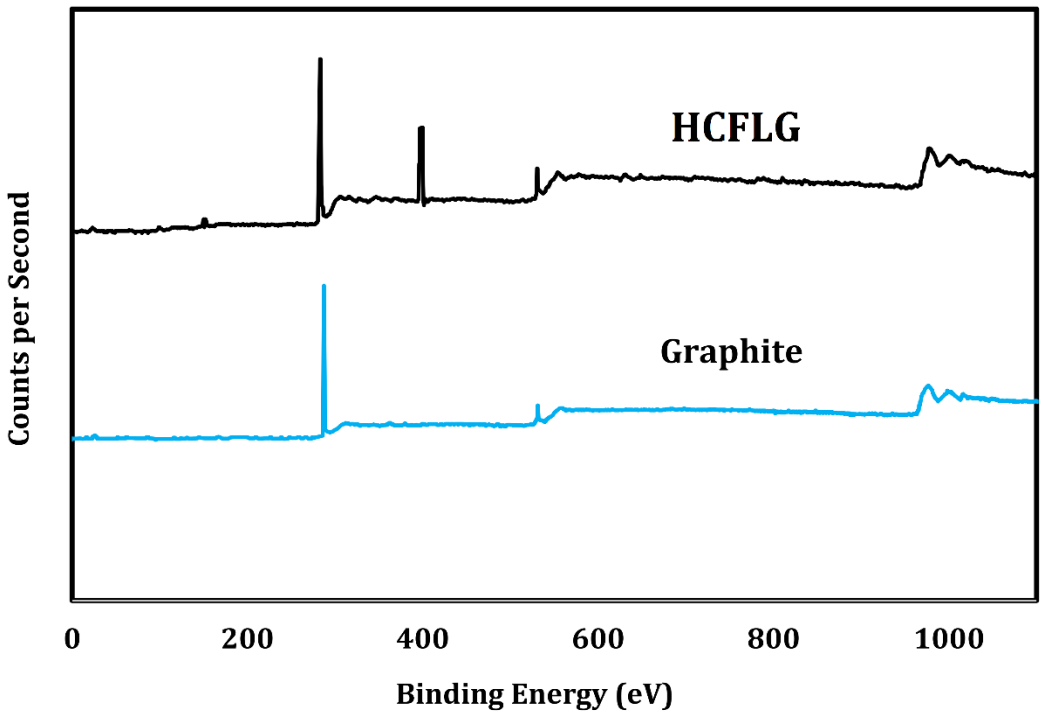

Figure S2. XPS survey spectra of pristine graphite and HCFLG

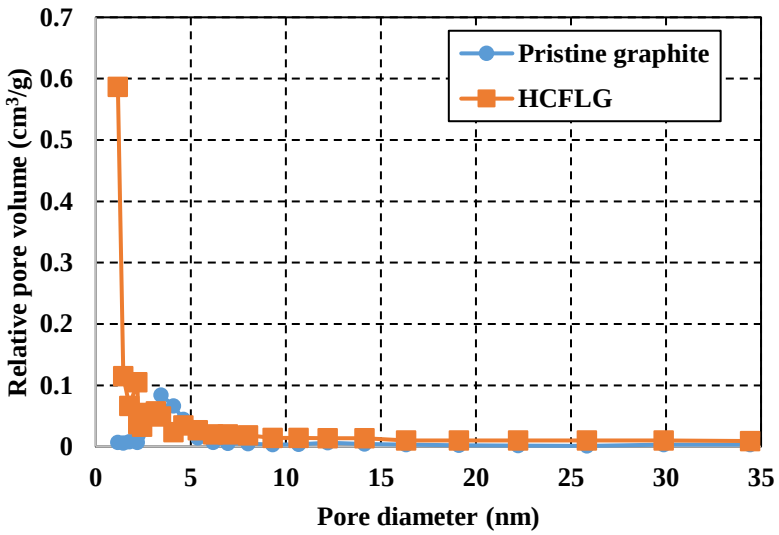

Figure S3. The pore size distribution curves of pristine graphite and HCFLG.

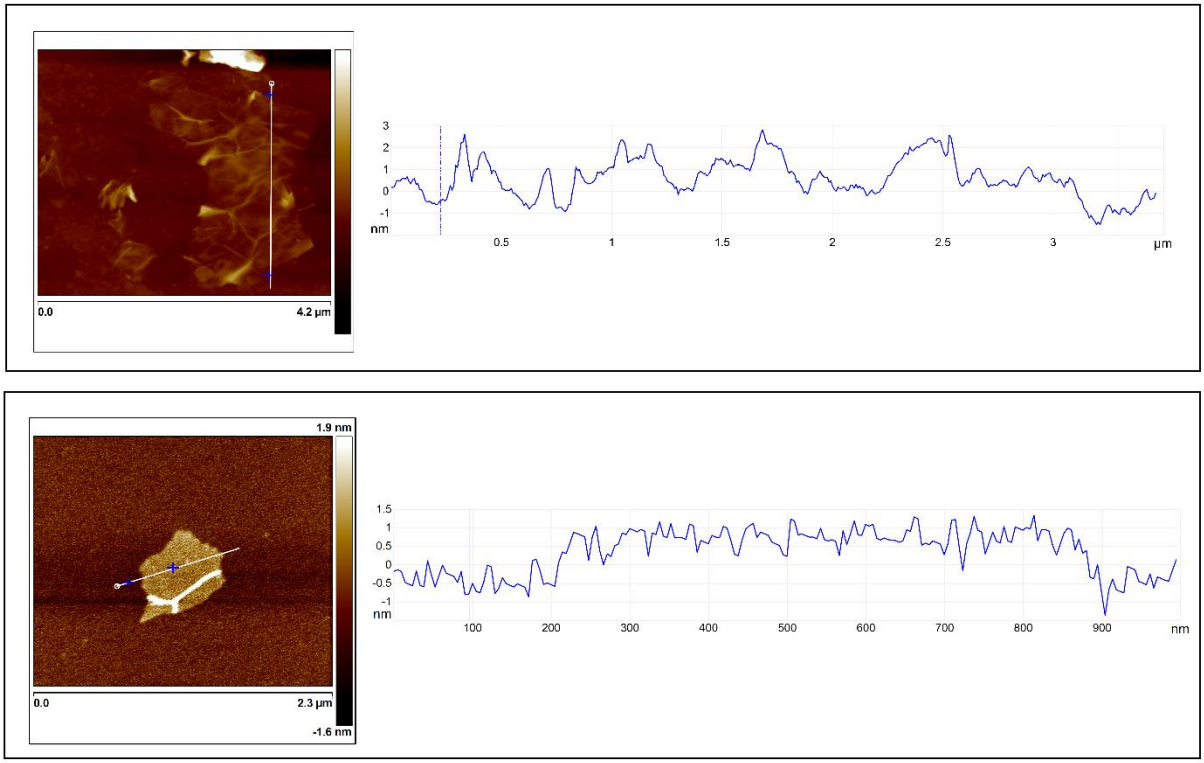

Figure S4. AFM ichnography and cross-section contour of HCFLG.

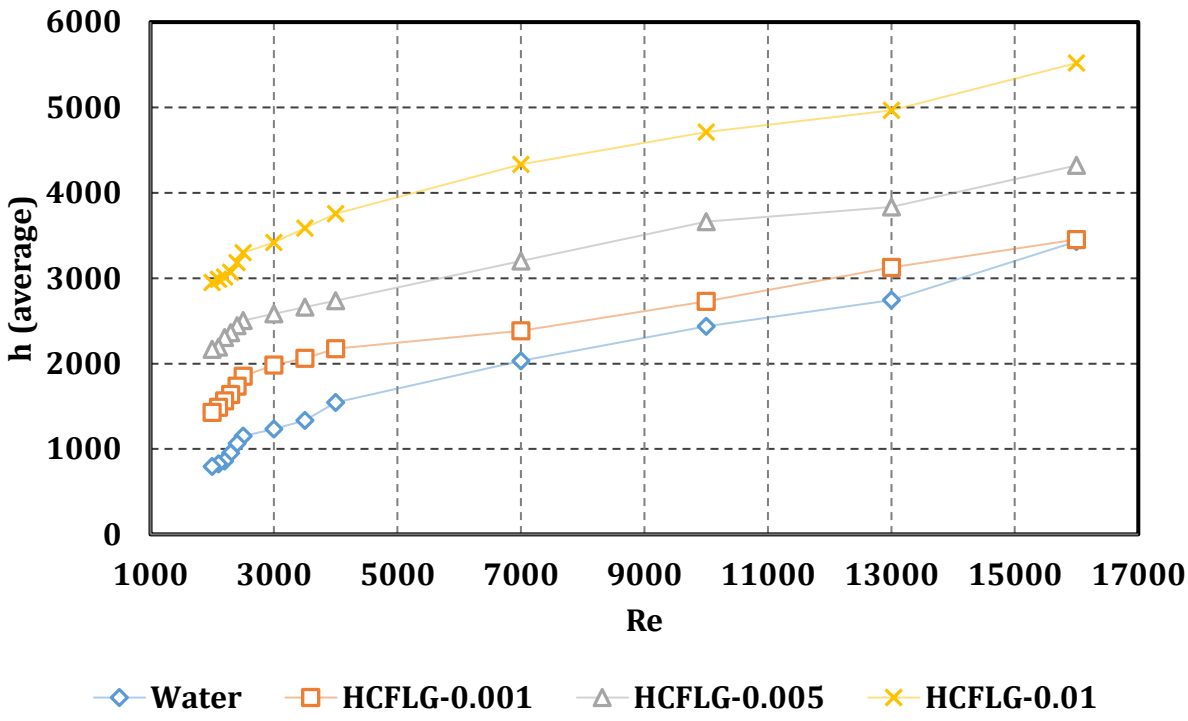

Figure S5. Average heat transfer coefficient of distillated water and water-based HCFLG nanofluids over a backward-facing step.