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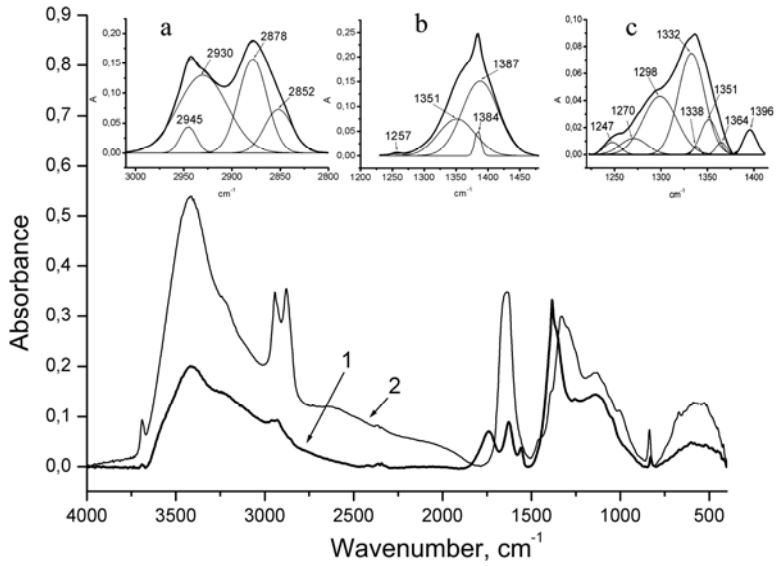
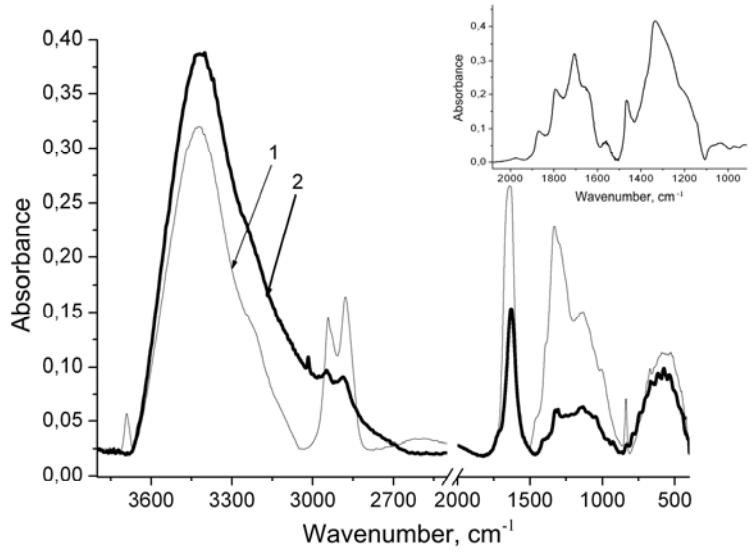
Halogenation of detonation-synthesised nanodiamond surfaces

Georgii V. Lisichkin,* Inna I. Kulakova, Yurii A. Gerasimov, Alexey V. Karpukhin and Ruslan Yu. Yakovlev



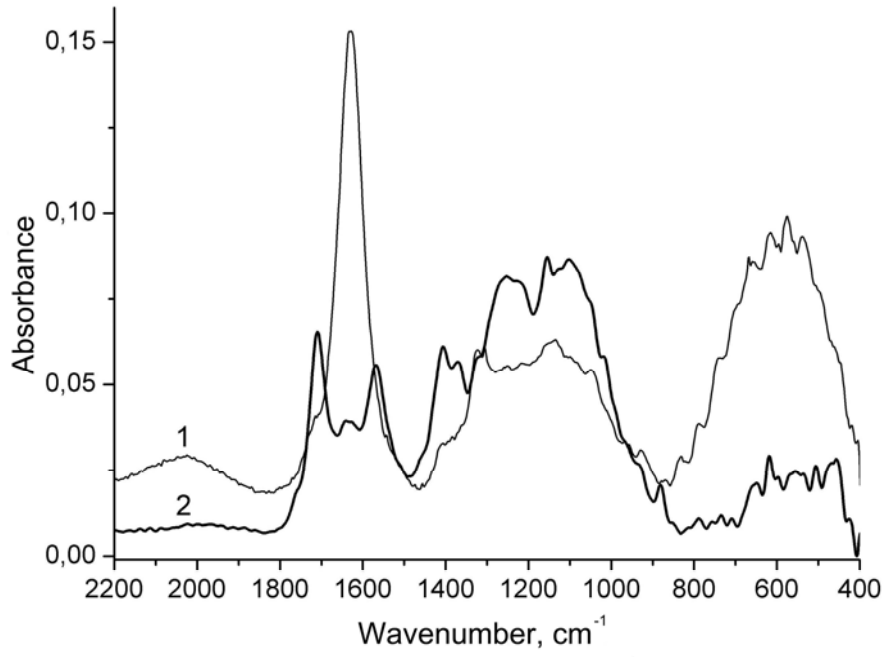
FTIR spectra of nanodiamond: 1 – original, 2 – after hydrogen treatment at 800 °C, 5 h

Inset: decompositions for hydrogenated nanodiamond in the ranges of 3000-2800 cm^{-1} (a), 1450-1250 cm^{-1} (c) and for original nanodiamond in the range of 1450-1250 cm^{-1} (b) .

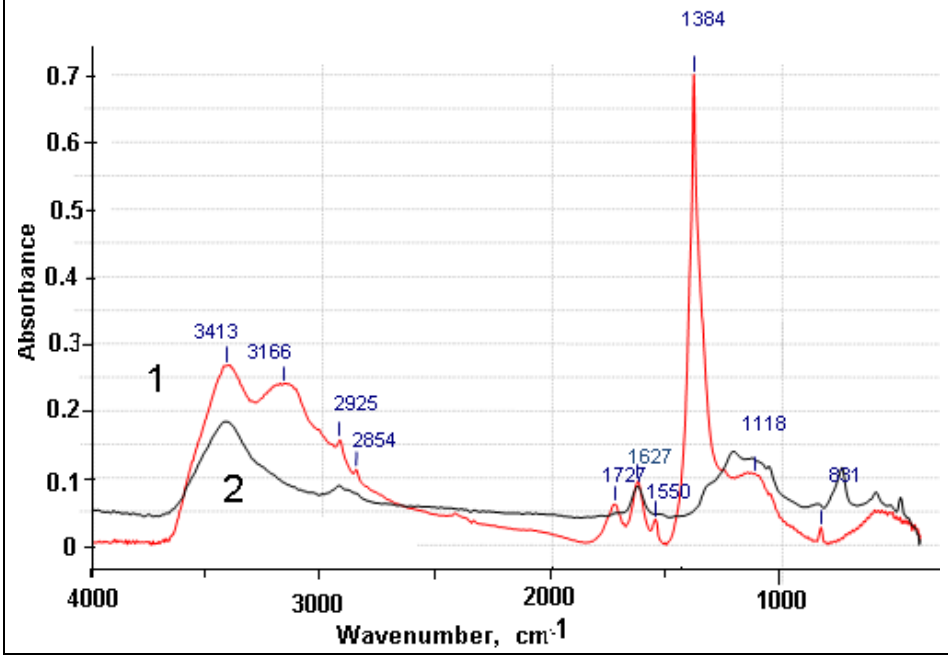


FTIR spectra of nanodiamond: 1– hydrogenated, 2 – chlorinated in liquid phase, 48 h.

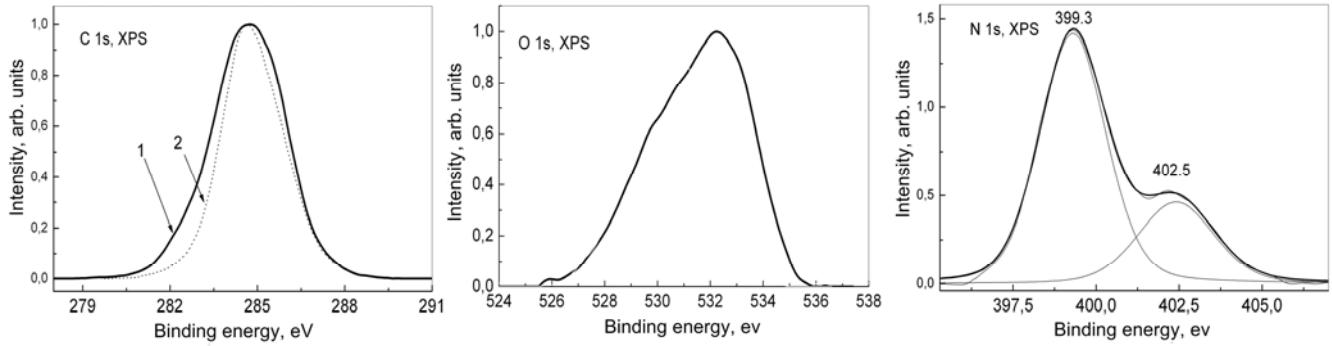
Inset: FTIR spectrum of fluorinated nanodiamond (with $F_{2\ gas}$).



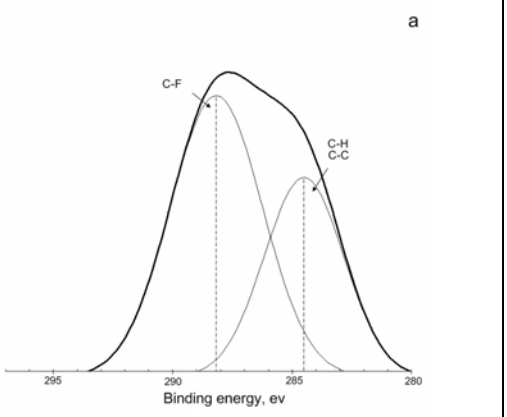
FTIR spectra of chlorinated nanodiamond before (1) and after the treatment with 0.05 M NaOH(2)

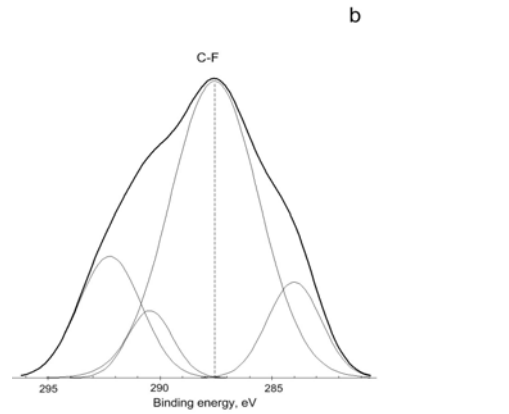


FTIR spectra of nanodiamond: 1 – original, 2 – fluorinated in SF_6 plasma

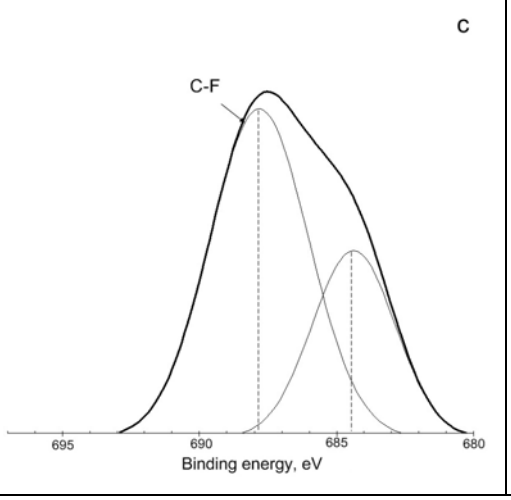


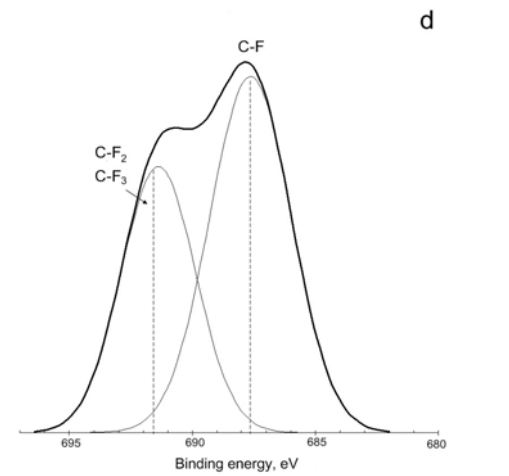
XPS spectra of C1s (1), O1s и N1s of original nanodiamond:and C1s XPS spectrum of hydrogenated nanodiamond:





C 1s XPS spectra of fluorinated nanodiamond:
a – with F_2 gas,
b– in SF_6 plasma





F 1s XPS spectra of fluorinated nanodiamond:
c – with F_2 gas,
d – in SF_6 plasma.