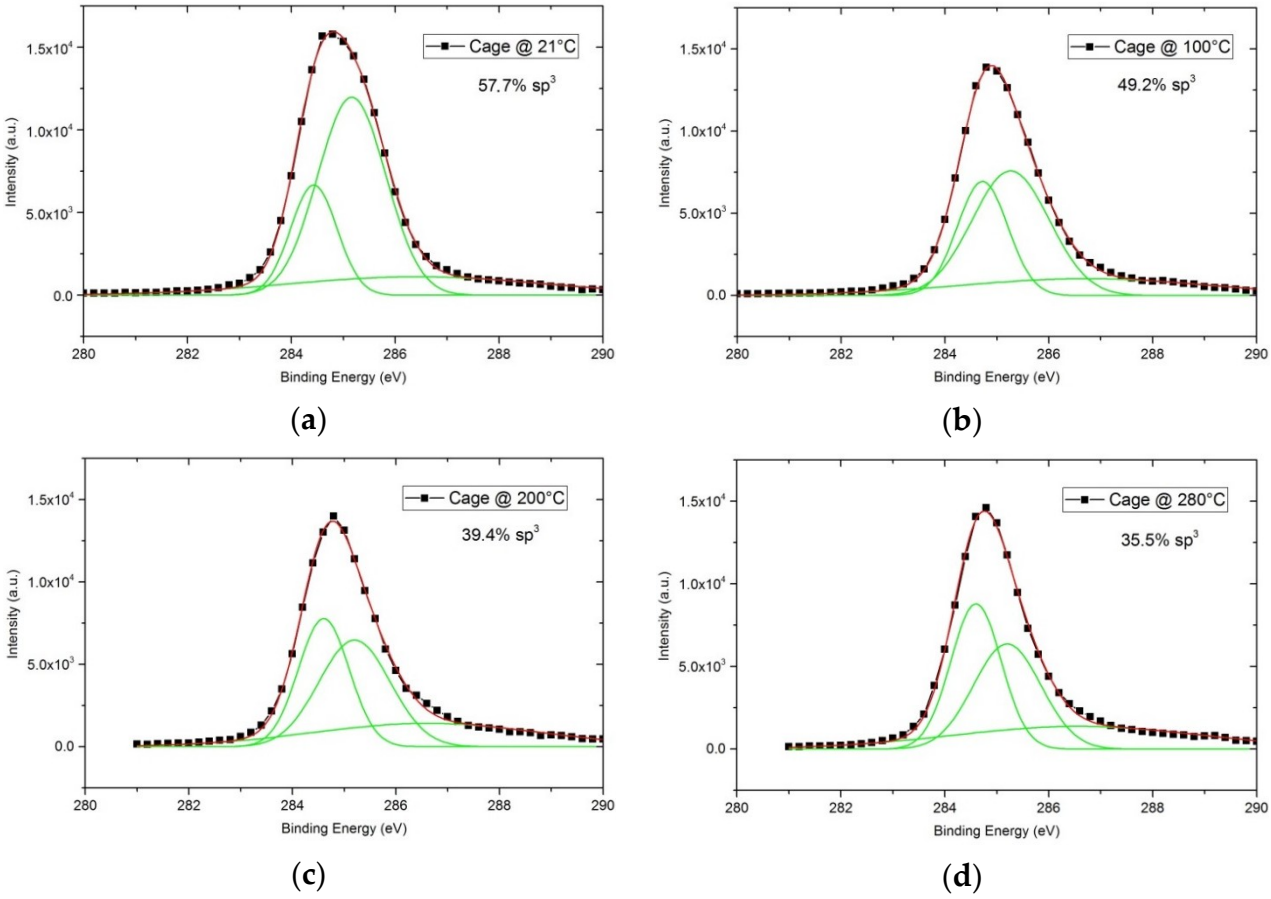
Supplementary Materials: The Role of Substrate Temperature and Magnetic Filtering for DLC by Cathodic Arc Evaporation

Helge Lux [1,*], Matthias Edling [1], Massimiliano Lucci [2], Julia Kitzmann [3], Claus Villringer [1], Peter Siemroth [4], Fabio De Matteis [5] and Sigurd Schrader [1]

[1] Department of Engineering and Natural Sciences, Technical University of Applied Sciences Wildau, Hochschulring 1, 15745 Wildau, Germany; edling@th-wildau.de (M.E.); villringer@th-wildau.de (C.V.); schrader@th-wildau.de (S.S.)
[2] Department of Physics, University of Roma Tor Vergata, Via della Ricerca Scientifica, 1, 00133 Roma, Italy; massimiliano.lucci@roma2.infn.it
[3] IHP Innovations for High Performance Microelectronics, Im Technologiepark 25, 15236 Frankfurt (Oder), Germany; kitzmann@ihp-microelectronics.com
[4] Arc Precision GmbH, Schwartzkopffstraße 2, 15745 Wildau, Germany; siemroth@arcprecision.com
[5] Department of Industrial Engineering, University of Rome Tor Vergata, Via del Politecnico 1, 00133 Rome, Italy; dematteis@roma2.infn.it
* Correspondence: lux@th-wildau.de; Tel.: +49-337-550-8119



(**a**) (**b**)

(**c**) (**d**)

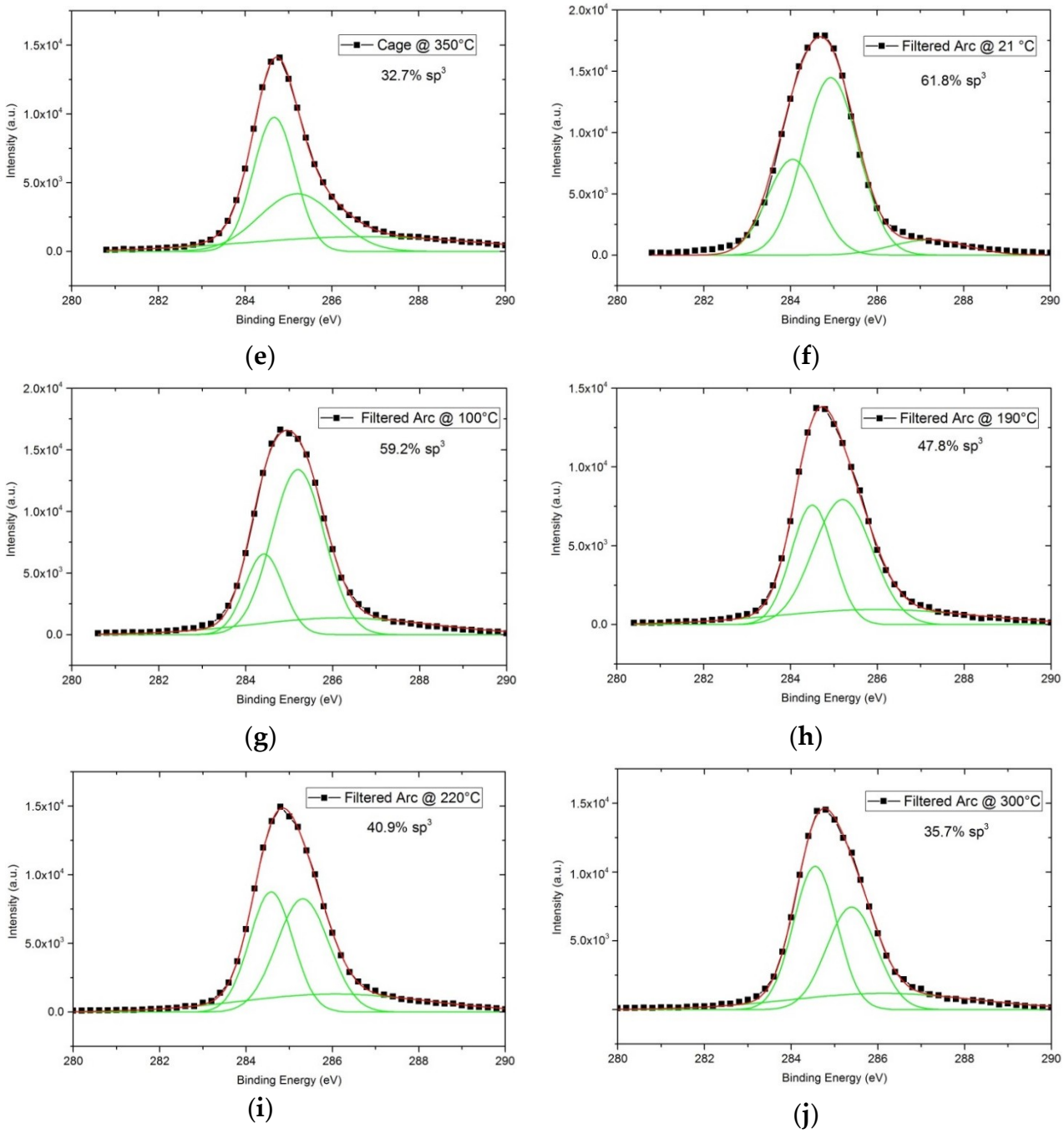
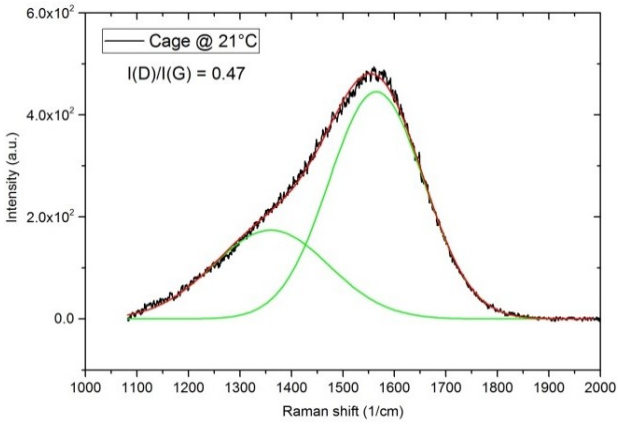
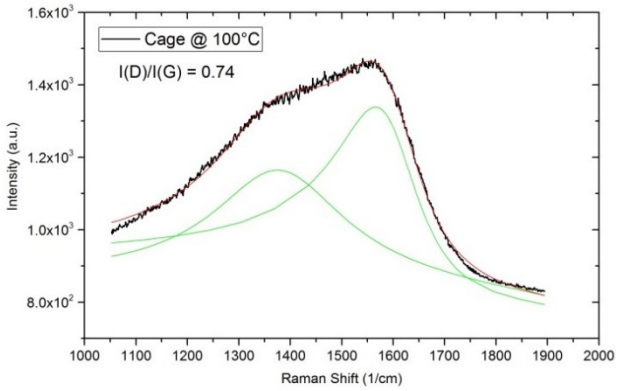


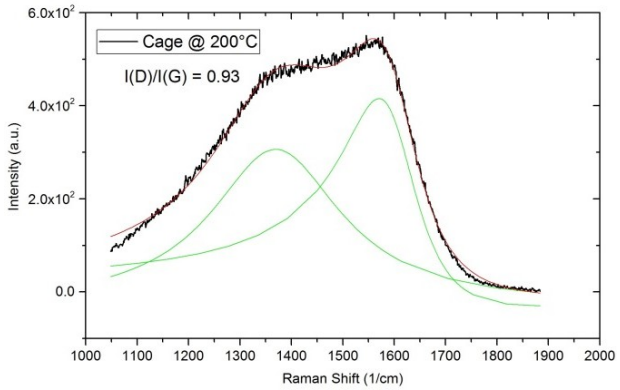
Figure S1. XPS spectra with its deconvoluted compounds for sp^3-carbon (285.2 eV), $sp2$-carbon (284.4 eV) and C–O contamination (286.5 eV) for different substrate temperatures: (**a**–**e**) for coated in cage, (**f**–**j**) for filtered deposition.


Cage @ 21°C
I(D)/I(G) = 0.47
Intensity (a.u.)
Raman shift (1/cm)

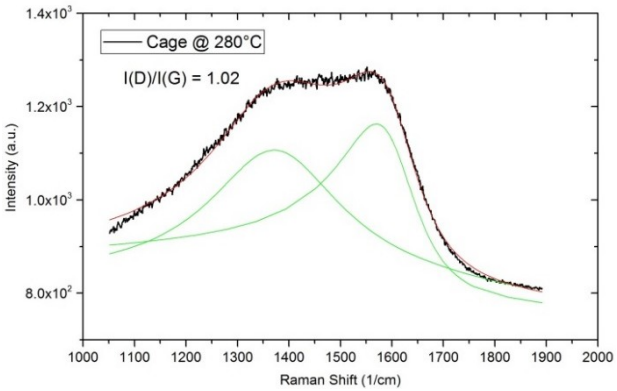
(**a**)


Cage @ 100°C
I(D)/I(G) = 0.74
Intensity (a.u.)
Raman Shift (1/cm)

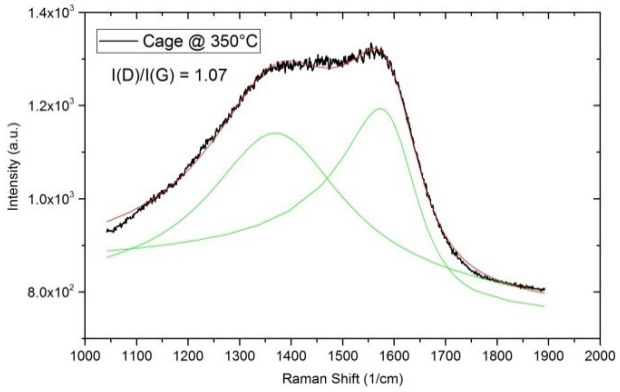
(**b**)


Cage @ 200°C
I(D)/I(G) = 0.93
Intensity (a.u.)
Raman Shift (1/cm)

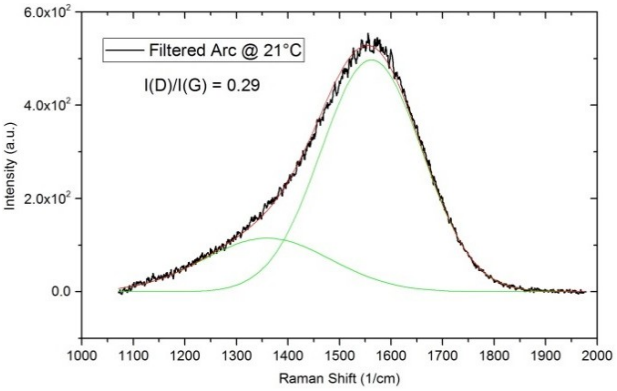
(**c**)


Cage @ 280°C
I(D)/I(G) = 1.02
Intensity (a.u.)
Raman Shift (1/cm)

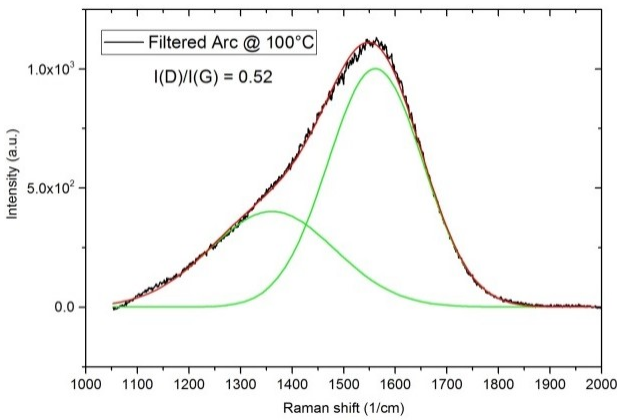
(**d**)


Cage @ 350°C
I(D)/I(G) = 1.07
Intensity (a.u.)
Raman Shift (1/cm)

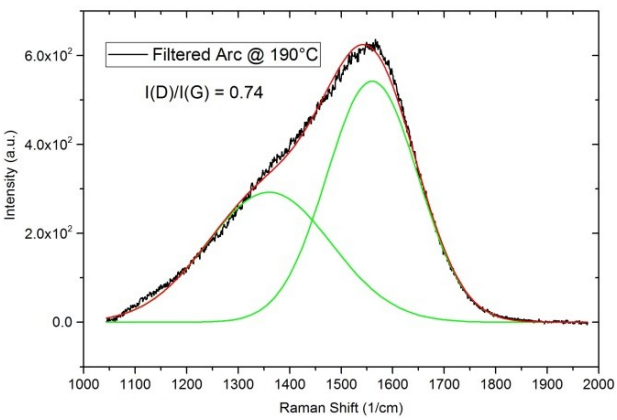
(**e**)


Filtered Arc @ 21°C
I(D)/I(G) = 0.29
Intensity (a.u.)
Raman Shift (1/cm)

(**f**)


Filtered Arc @ 100°C
I(D)/I(G) = 0.52
Intensity (a.u.)
Raman shift (1/cm)

(**g**)


Filtered Arc @ 190°C
I(D)/I(G) = 0.74
Intensity (a.u.)
Raman Shift (1/cm)

(**h**)

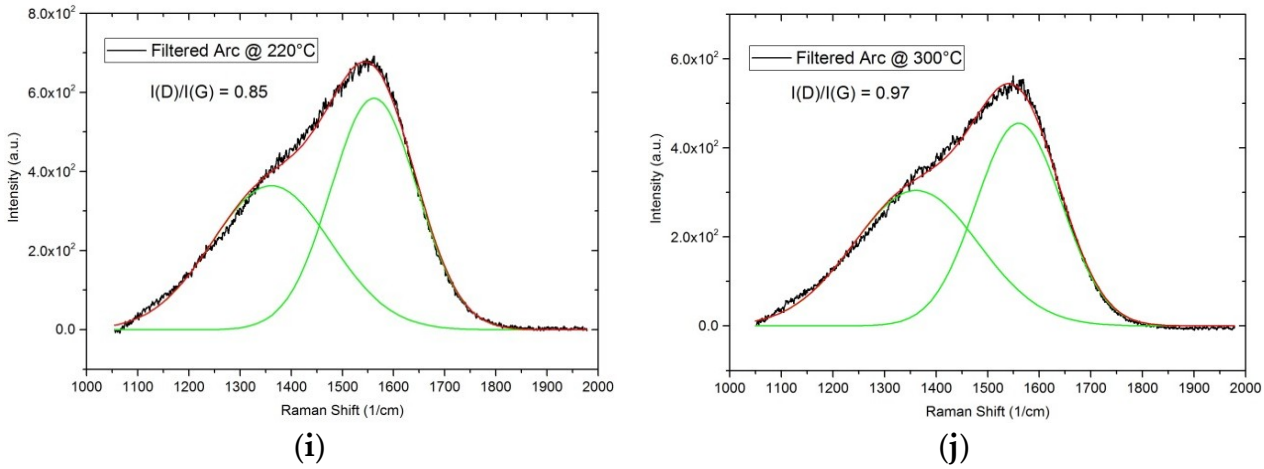


Figure S2. Deconvolution of Raman D band and G band (green line) and the resulting fitting curve (red line) for different substrate temperatures: (**a**–**e**) for coated in cage, (**f**–**j**) for filtered deposition.