

Abstract Submitted
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Room temperature stability of mass selected Ag clusters on C₆₀ functionalized surfaces¹ STEFANIE DUFFE, LUKAS PATRYARCHA, TORSTEN RICHTER, BENEDIKT SIEBEN, HEINZ HÖVEL, Technische Universitaet Dortmund, Experimentelle Physik I, Germany, CHUNRONG YIN, BERND VON ISSENDORFF, Universitaet Freiburg, Fakultae fuer Physik, Germany, MICHAEL MOSELER, Fraunhofer-Institut fuer Werkstoffmechanik IWM, Freiburg, Germany — Mass selected clusters from Ag₅₅⁺ to Ag_{561±5}⁺ were soft landed on HOPG and Au(111) functionalized with 1 and 2 monolayers (ML) of C₆₀ molecules [1]. Depositions at 165 K gave extremely narrow cluster height distributions in STM images measured at 77 K. Using C₆₀/HOPG or 2 ML C₆₀/Au(111) the cluster heights are stable for more than 12 h at room temperature (RT). For 1 ML C₆₀/Au(111) the cluster height decreases and finally all clusters disappear at RT. Molecular dynamics simulations reveal a process by which the clusters decay atom by atom through 1 ML C₆₀/Au(111) at RT. A sharp maximum at 1.7 nm cluster height forms during the cluster decay, indicating that there exists some metastable 'supported magic number'.

[1] S. Duffe et al., Eur. Phys. J. D (2007), published online

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