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ADDITIONS AND CORRECTIONS

Correction to On-Surface Synthesis with Atomic Hydrogen

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When preparing the original version of the paper, we missed two papers reporting previous experiments with atomic hydrogen in surface-assisted synthesis.[1,2] Abyazisani *et al.* showed that atomic hydrogen could be utilized to remove the Ullmann coupling byproduct, namely, Br, from Cu surfaces.[1] Sánchez-Sánchez *et al.* demonstrated the application of atomic hydrogen to induce intermolecular fusion of hydrocarbons on Au(111).[2] Our paper partially follows a patent application "Method of Substituting Halogen Atoms with Hydrogen Atoms in Halogen Substituted Aromatic Molecules" submitted in 2018.[3] Therefore, the following sections of our original article shall be modified.

The text "Here we demonstrate an approach based on application of atomic hydrogen in on-surface synthesis. From our experiments, we show that residual bromine as a byproduct of surface-assisted polymerization could be efficiently removed from the surface by appropriate reaction with atomic hydrogen leaving the generated surface polymers intact. Furthermore, the concept of molecular nanostructures modification based on atomic hydrogen is introduced." shall be rewritten as follows:

"Here we demonstrate an approach based on application of atomic hydrogen in on-surface synthesis. We extend the approach introduced by Abyazisani *et al.*, who have demonstrated that bromine remaining on the surface after Ullmann coupling reaction could be efficiently removed from Cu surfaces.[1] From our experiments, we show that a similar procedure could be also effectively applied on Au(111), leaving the generated surface polymers intact. Furthermore, we extend the concept of molecular nanostructures modification introduced by Sánchez-Sánchez *et al.* for intermolecular fusion of hydrocarbons based on atomic hydrogen.[2]"

The text "In contrast, we have applied atomic hydrogen flux, stabilized at the gas pressure of 1×10^{-7} mbar, and kept the surface at a slightly elevated temperature, i.e., at 100 °C lasting for 10−20 min. This procedure leads to very efficient bromine removal while keeping the polymers unaffected, which is demonstrated in Figure 2c−f." shall be modified as follows:

"In contrast, following the procedure introduced by Abyazisani *et al.*, who have used atomic hydrogen for efficient removal of bromine from Cu surfaces after Ullmann type coupling,[1] we have applied atomic hydrogen flux, stabilized at the gas pressure of 1×10^{-7} mbar, and kept the surface at a slightly elevated temperature, *i.e.*, at 100 °C lasting for 10−20 min. This procedure leads to very efficient bromine removal while keeping the polymers unaffected, which is demonstrated in Figure 2c−f. Our experiments indicate that the concept presented by Abyazisani *et al.*[1] could be effectively applied also for the Au(111) surface."

The text "In conclusion, we have shown that application of atomic hydrogen and its combination with well-established annealing procedures provides synthetic routes in the on-surface chemistry approach." shall be modified as follows:

"In conclusion, we have shown that extension of previously reported application of atomic hydrogen and its combination with well-established annealing procedures[1,2] provides synthetic routes in the on-surface chemistry approach."

The text "Finally, we have also demonstrated that the unwanted on-surface Ullmann-like coupling byproducts, *i.e.*, bromine, could be effectively removed from the surface with atomic hydrogen leaving hydrocarbon polymers intact." shall be rewritten as follows:

"Finally, extending the approach introduced by Abyazisani *et al.*,[1] we have also demonstrated that the unwanted on-surface Ullmann-like coupling byproducts, *i.e.*, bromine, could be effectively removed from the Au (111) surface with atomic hydrogen leaving hydrocarbon polymers intact."

The corrected paper contains an additional note: The debromination protocol with atomic hydrogen is based on a patent application.[3]

REFERENCES

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