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Propositions

accompanying the thesis

Step Away From Flat Land -
Employing a Cylindrical Crystal in Gas-Surface Dynamics Studies

1. Different poisons are not identical to each other. Some catalytic poisons are more lethal than others.
   *Chapter 3 of this thesis*

2. AES signal intensity depends on the structure of the studied surface. For quantitative measurements signal intensities for every single part of the surface studied should be calibrated independently.
   *Chapter 4 of this thesis*

3. ‘We have recently demonstrated the value of studying the behaviour of cylindrical single crystal surfaces as a means of establishing the relative reactivity of a large number of different crystal faces simultaneously.’
   *J. S. Arlow, and D. P. Woodruff, Surface Science, 180, 89 (1987)*
   With appropriate machinery and procedures absolute reactivities can be measured.
   *Chapters 4, 6, and 7 of this thesis*

4. The model for hydrogen dissociation on platinum surfaces with (111) terraces and (100) steps suggested by Groot *et al.* holds for nickel surfaces with (111) terraces with both (100) and (110) step edges.
   *Chapter 6 of this thesis*

5. Cylindrical crystals are the best way to study the influence of step and/or terrace geometry and step density on reaction probability.
   *Chapters 4 and 6 of this thesis*

6. For a better understanding of catalysis it is necessary to investigate how different arrangements of atoms on step sites influence reactivity.
   *Chapters 6 and 7 of this thesis*

7. Many flaws in the design of equipment are only discovered after the construction phase. Unfortunately improving it is hardly ever an immediate option.
8. Scientists should think and publish in SI units. Publishers should enforce that by only accepting manuscripts with the appropriate units.

9. Science insists on a criterion for dependence, namely repetitive observation or experiment: . . . So it looks as if science has a methodical way of finding causal relations without referring to any metaphysical principle. But this is a deception. For no observation or experiment, however extended, can give more than a finite number of repetitions, and the statement of a law B depends on A always transcends experience.

M. Born, Natural Philosophy of Cause and Chance (Oxford University Press, 1949)

10. Knitting is good for science.

Christine Hahn
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