Light-induced molecular processes on ice

1. Water molecules adsorbed on the terrace sites of the stepped Pt(533) surface are bound more strongly when hydrogen-bonded to water adsorbed on the steps.  
   Chapter 3 of this thesis

2. Femtosecond laser pulses provide an excellent tool for producing extremely hot electrons in a single-crystal metal.  
   Chapter 4 of this thesis

3. Although they are structurally similar molecules, CHBr$_3$ and CHCl$_3$ exhibit very different mobilities on ice surfaces.  
   Chapter 5 of this thesis

4. Non-hydrogen-bonded “terminal” O—H groups at the amorphous solid water surface are involved in the photochemistry of CHBr$_3$ on this surface.  
   Chapters 6 and 7 of this thesis

5. Two recent papers, published back-to-back, report diametrically opposed results on water adsorption on metal surfaces, using identical electron-based techniques. The first paper claims that water dissociation does not occur thermally, as it is an activated process, and the other claims partial dissociation. The fact that the technique employed is known to be perturbative, implies the first paper is correct.  

6. Using CHCl$_3$ desorption as an indicator of the crystallinity of ice surfaces is controversial. Backus et al. could distinguish between crystalline and amorphous ice by employing CHCl$_3$ TPD, while Hodgson et al. found it only sensitive to the gross morphology of thin ice surfaces. These apparently contradicting results illustrate the sensitivity of water layers to the precise experimental conditions.  

7. Laboratory studies indicate that increasing levels of UV radiation results in rising emission of halogen compounds from marine macroalgae. These, in turn, efficiently contribute to ozone depletion. This suggests a worrisome ‘more UV – more halogens – less ozone – more UV’ downward spiral.  

8. Recent experimental studies indicate that a dominant fraction of liquid water molecules are in configurations with only two strong H bonds, with the configurations connected via a three-dimensional weakly H-bonded network. This is in contrast to the hydrogen-bonded tetrahedral structure suggested by molecular dynamics simulations, many other experimental approaches and chemical intuition.  
   Science 304 (2004) 995

9. An enlarged Europe could be stronger if a “Nürnberg of communism” would take place.

10. Drugs used in today’s sport world may be divided in the categories “banned” and “not-yet-banned” substances. One way to be successful is to keep up with the latter.