Propositions

accompanying the dissertation

Graphene and doped graphene from adsorbed molecules

Tashfeen Zehra

1. Material Science has been moving from three- to two-dimensional materials over the past decade as these planar solids have the potential to transform the future due to their small size and extraordinary properties. (Chapter 1)

2. The possibility to tune the properties such as surface density and structure of aromatic SAMs can be useful in material science applications. The aromatic SAMs show interesting chemical and structural modifications when exposed to electron, ion and photon irradiation. (Chapter 1)

3. A new method to grow graphene is to start from self-assembled monolayers (SAMs) – a route which has received relatively little attention so far. This approach is relatively simple, easily upscalable and there is a high possibility for this method to produce high-quality graphene. (Chapter 3)

4. The self-assembled monolayers (SAMs) of borazine ($C_{78}H_{69}B_3N_{12}S_3$) are an attractive starting material for doped graphene growth as boron and nitrogen have nearly the same sizes as carbon and also the bond length for borazines (1.44 Å) is nearly the same as benzene (1.40 Å) that is a precursor used in the synthesis of pure graphene. (Chapter 4)

5. Seek knowledge from cradle to grave. (Hadith)

6. With faith, discipline and selfless devotion to duty, there is nothing worthwhile that you cannot achieve. (M.A.Jinnah)

7. Technology is a useful servant but a dangerous master. (Christian Lous Lange)

8. Interaction with people from different religions and cultures allows to realize how important are the connections between people in order to overcome the stereotypes.