Nanoscience and nanotechnology certainly are buzz words in the 21st century, and much hype is associated with activities in these areas. What is it that has brought about the interest in this field? Billions of dollars are being invested worldwide by governments, including the South African government, in nanosciences and activities.

The best way to understand what ‘nano’ is all about is to consider the following. Individual copper atoms do not conduct electricity. Nor do two, three or four copper atoms. Yet copper metal does – so where do the properties of copper change over from being non-conducting to conducting? This transition takes place in the nano range, with particle sizes typically <100 nm.

The development of various modern techniques that allow us to ‘see’ atoms, and so investigate particles in this range, have now opened up this regime for study. And now that studies have commenced, a rich world of atom interactions leading to new materials and devices has become possible.

Although the field of nanotechnology is a relatively new one in this country, isolated projects in related areas have been going on for more than a decade. Metal particle sizes of 100 nm and less, for example, had been observed in catalysts before the word ‘nanotechnology’ came into use. The formation of various modern techniques that allow us to ‘see’ atoms, and so investigate particles in this range, have now opened up this regime for study. And now that studies have commenced, a rich world of atom interactions leading to new materials and devices has become possible.

The best way to understand what ‘nano’ is all about is to consider the following. Individual copper atoms do not conduct electricity. Nor do two, three or four copper atoms. Yet copper metal does – so where do the properties of copper change over from being non-conducting to conducting? This transition takes place in the nano range, with particle sizes typically <100 nm.

The development of various modern techniques that allow us to ‘see’ atoms, and so investigate particles in this range, have now opened up this regime for study. And now that studies have commenced, a rich world of atom interactions leading to new materials and devices has become possible.

Although the field of nanotechnology is a relatively new one in this country, isolated projects in related areas have been going on for more than a decade. Metal particle sizes of 100 nm and less, for example, had been observed in catalysts before the word ‘nanotechnology’ came into use. The formation of various modern techniques that allow us to ‘see’ atoms, and so investigate particles in this range, have now opened up this regime for study. And now that studies have commenced, a rich world of atom interactions leading to new materials and devices has become possible.

Although the field of nanotechnology is a relatively new one in this country, isolated projects in related areas have been going on for more than a decade. Metal particle sizes of 100 nm and less, for example, had been observed in catalysts before the word ‘nanotechnology’ came into use. The formation of various modern techniques that allow us to ‘see’ atoms, and so investigate particles in this range, have now opened up this regime for study. And now that studies have commenced, a rich world of atom interactions leading to new materials and devices has become possible.