Good morning, everyone. My name is Luo Cheng.

Our topic is the summary of materials surface/interface integrity of component and its formation. Here are our team’s members.

And our contents are mainly divided to two parts. Part I is Surface/Interface Integrity of component. Part II is the formation of surface/interface integrity. Part I, firstly, it has three classes. The one is surface features, two is surface characteristics and the three is functional performance. And, from each one, we will pick some aspects we interest, it means we just list a little, you can also look up teacher’s PowerPoint for a more overall and detailed version. Meanwhile, it will be show as micro scale to macro scale order. So, let’s start.

The surface features, which contains two aspects. Microstructure, like phase transformation, crystalline & amorphous features, grain/domain size & orientation and deformation size. Surface finish and composition, such as surface topography and chemical composition.

Surface characteristics also have two aspects. And it’s easy to understand. Physical and Chemical properties. The thermal conductivity, optical properties and elastic modulus are physical properties. The surface affinity, electric potential and chemical potential are chemical properties.

And the last aspect is functional performance. We think it’s the most significant one for us material workers. Including wear resistance corrosion resistance, anti-fatigue performance

and oxidation resistance.

In order to achieve our goals, we can adopt measures from micro scale to macro scale that we just referred.

Well what’s the specific methods? Please look at our part II. Formation of surface/interface integrity. Similarly, the basic classification. Surface coating, surface modification ,which has chemical reaction, and surface treatment which has no chemical reaction.

This part we will use two examples to introduce you to the surface coating and surface modification. So, it turns to the next one.