
On the mutual interactions between the plasmas and treatment targets

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The plasmas transform the composition of gas to energy level which contains charged particles and chemically reactive particles. Plasma technology is important in diverse fields such as semiconductor manufacturing, water treatment and agriculture. In order to properly apply plasma technology to these fields, it is necessary to develop plasma generation devices which are optimized to each of the plasma applying fields because each of the fields requires plasmas of different. And it is essential to have knowledge physical and chemical properties of target materials because the byproducts from the target change the density and temperature of plasmas can only be optimized for processing of target materials when you take into consideration the interaction between the plasmas with target materials. Based on this viewpoint, we focused on interaction between the plasmas and materials which are processed by the plasmas. To investigate the mutual relation between the target material and the plasma, the accurate and reliable diagnostics and well-designed simulations are required and these are the research subjects we have been focused on by both experiments and simulations. The results imply that the one should consider the mutual interactions between the plasma and target material to develop the optimized plasma source.

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