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#### Role of Oxygen in the Angular Distribution of Sputtered Constituents from Fe/Cr Alloy studied by laser SNMS

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The angular distribution of sputtered components from multi-component materials can be changed depending on sputtering conditions and the characteristics of each component. It has been demonstrated that the surface segregation of an element in binary alloys causes the different angular distribution of each constituent during the sputtering process. The segregated component in alloys is liable to be ejected in the direction along target surface.

In this work, the oxygen effect on the angular distribution of sputtered constituents from Fe/Cr alloy has been studied using laser sputtered neutral mass spectrometry (SNMS). Even though Cr has strong segregation tendency in Fe/Cr alloy, the segregation of Fe has been expected due to the oxidation effect. We have measured the angular distribution of sputtered constituents of Fe/Cr alloy under the oxygen environment by a Xe<sup>+</sup> ion beam of upto 5 kV with the incident angle of 60°. Neutral particles were ionized in the ionization region of reflectron TOFMS with a XeCl excimer laser (308 nm; 4.03 eV). The ions were detected by MCP detector and collected by a digitizing transient oscilloscope. The variable ejected angle of sputtered particles can be obtained by moving the target vertically.