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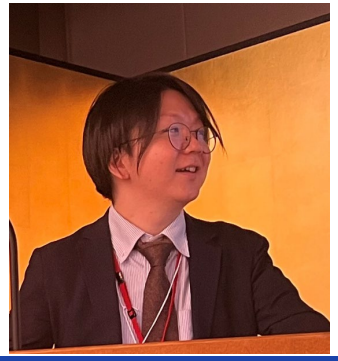

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Study on wear mechanism of zirconia film toward new applications of AD method

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Highlights of This Poster Presentation

➢ Purpose

Dense ZrO2 films with different content of Y_2O_3 stabilizer (0, 3 and 8 mol%) were coated on aluminum alloy substrates by AD method, and the effects of their microstructure and properties on their wear resistance with changing the sliding environment.

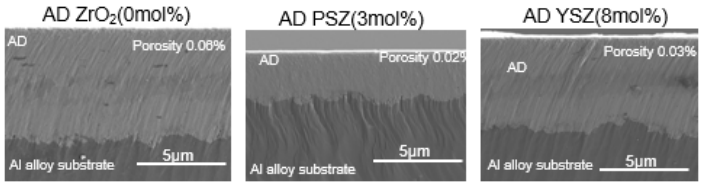

Fig.1Cross-sectional SEM micrographs of AD films on aluminum alloy prepared by AD method

➢ Conclusion

AD method enabled the formation of dense 0mol ZrO_2, PSZ, and YSZ films. Mechanical properties such as hardness and adhesion were superior to those of thermal spraying. Thermal conductivity was comparable to that of sintered compacts. When sliding against an alumina ball, the AD film exhibited almost no wear, comparable to that of the sintered body. However, a reaction layer formed on wear surface of both AD films and the sintered PSZ.