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Foreword

The functionality of piezoelectric materials has become very useful in many integrated devices applications due to their electrical–mechanical reciprocity. Piezoelectric materials such as aluminum nitride (AlN) and lead zirconate oxide are widely employed. Therefore, it has become increasingly important to characterize the activity of piezoelectric materials relative to their applications and functionality. This special issue is dedicated to the piezoelectric materials characterization and microwave applications. The issue contains seven papers on the subject, in addition to four other papers.

Of the piezoelectric papers, Al Ahmad and Plana [1] describe the displacement detection of thin-film AlN using capacitance measurements while Menéndez *et al.* [2] report a design methodology for microwave acoustic filters. The third paper, by Muralt *et al.* [3], highlights the impact of material parameters for GHz applications; monolithic thin-film piezoelectric-on-substrate high-frequency filters are addressed by Abdolvand and Ayazi [4] in the fourth paper. The fifth paper (Ikehashi *et al.* [5]) outlines a lithographical bending control method for piezoelectric actuator fabrication for MEMS applications. The correlation of capacitive RF-MEMS reliability to AlN is discussed by Papandreou *et al.* [6] while Poplavko *et al.* [7] show the use of piezoelectric materials in building tunable microwave devices.

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