

# A self-pumping, low-voltage piezoelectrically-driven electrospray

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*Abstract* — In this era of technology, electrosprays have attracted significant attention for material synthesis and coating in the food and pharmaceutical industries. In this work, a new method of electrospray generation using a piezoelectric transformers will be discussed. Unlike the traditional methods which need kilovolt range of input voltage, the piezoelectric-driven generator can form a spray using a 20 Vamp input voltage. The liquid is delivered to the surface of the piezoelectric using a paper wick, thus requiring no external pump, and the spray is off the entire edge of the piezoelectric crystal to provide a broad area, continues, and uniform spray highly suitable for coating purposes. The effect of the liquid conductivity and surface tension on the resultant spray and the sprays similarity to conventional electrospray will be overviewed.