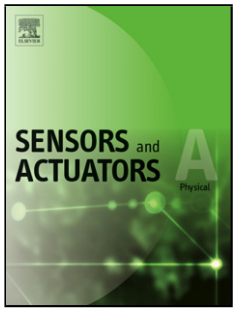

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Polyvinylidene fluoride grafted poly(styrene sulfonic acid) as ionic polymer-metal composite actuator

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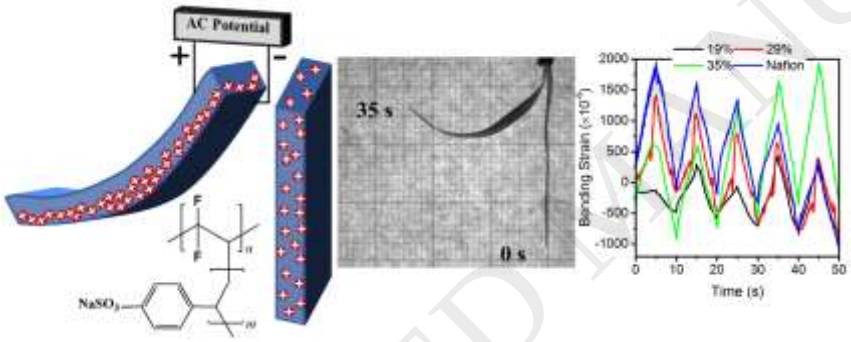
Graphical abstract



Research Highlights

- PVDF-*g*-PSSA was demonstrated as an IPMC actuator for the first time in literature.
- Synthesis of PVDF-*g*-PSSA was performed by a novel, simple and fast method.
- High water uptake and ion exchange capacity of grafted membrane were obtained due to porous microstructure.
- Best actuation performance of IPMC actuator was achieved with 35 wt.% graft level.
- A cheaper alternative to traditional Nafion-based IPMC was developed.