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Characterization and Performance of the Electroosmotic Pumping Effect for Different Porous Media DANIEL PIWOWAR, THOMAS HANSEN, FRANCISCO DIEZ, Rutgers University — This work evaluates the electroosmotic pumping effect of various types of porous media. The focus was to determine the highest flow rate of each porous media and to find the maximum flow rate per surface area. The characterizations included power performance, flow rate, and back pressure measurements. Pumps are assembled in-house and included glass frits with varying thicknesses, glass fiber filters, porous anodic alumina membranes (PAAMS), and microcapillary arrays. Flow rates as high as 200mL/min are obtained. The flowrates for all porous media are normalized by the electric field and by the surface area to show the most efficient electroosmotic pumps. Results are in good agreement with recent published work. Closed loop pump systems are compared to open loop pump systems showing significant differences in flow rate and performance.

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