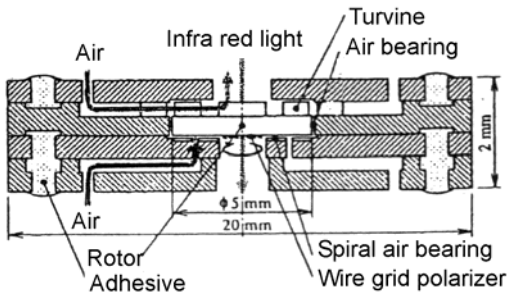
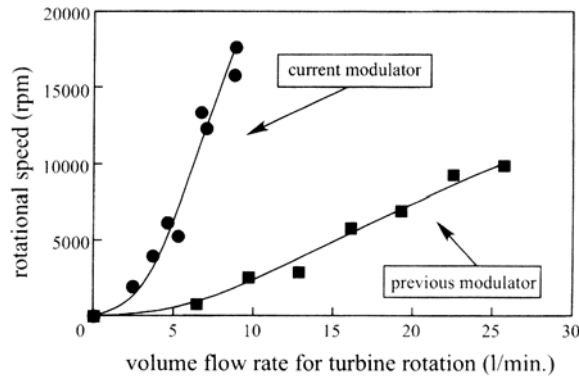


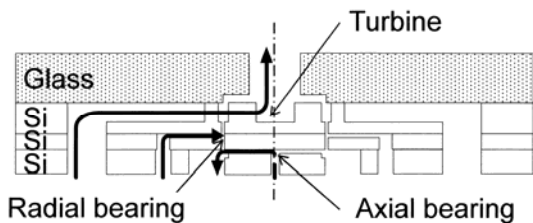
Si マイクロタービンと熱電発電



高速偏光変調のための Si エアタービン



参考文献 : S.Tanaka, M.Hara and M.Esashi, Mechanical Polarization Modulator Using Micro-turbo Machinery for Fourier Transform Infrared Spectroscopy, Sensors and Actuators, A 96 (2002) pp.215-222



内向流ラジアル軸受けを用いた Si エアタービン

1) Preparation of 2nd and 3rd silicon wafer

2) SiO₂ deposition, patterning and DRIE

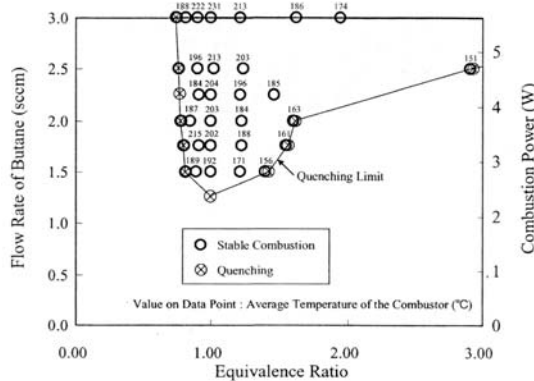
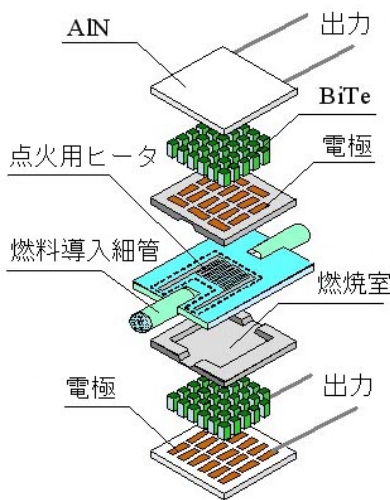
3) SiO₂ etching

4) Direct bonding

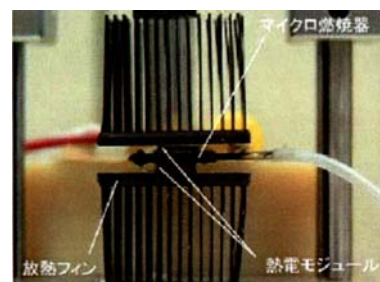
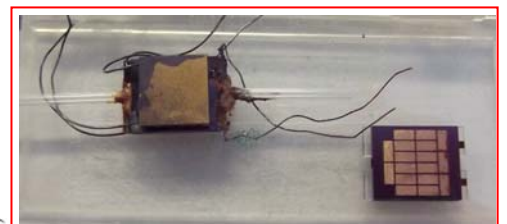
5) Photolithography and cavity-through DRIE

Cavity-through deep reactive ion etching

参考文献 : S.Tanaka, Y.Miura, P.Kang, K.Hikichi and M.Esashi, MEMS-based Air Turbine with Radial-inflow Type Journal Bearing, Trans. on Electrical and Electronic Engng. 3 (2008) pp.297-304



熱電発電



参考文献 : K.Yoshida, S.Tanaka, S.Tomonari, D.Satoh and M.Esashi, High-Energy Density Miniature Thermoelectric Generator Using Catalytic Combustion, J. of Microelectromechanical Systems, 15 (2006) pp. 195-203