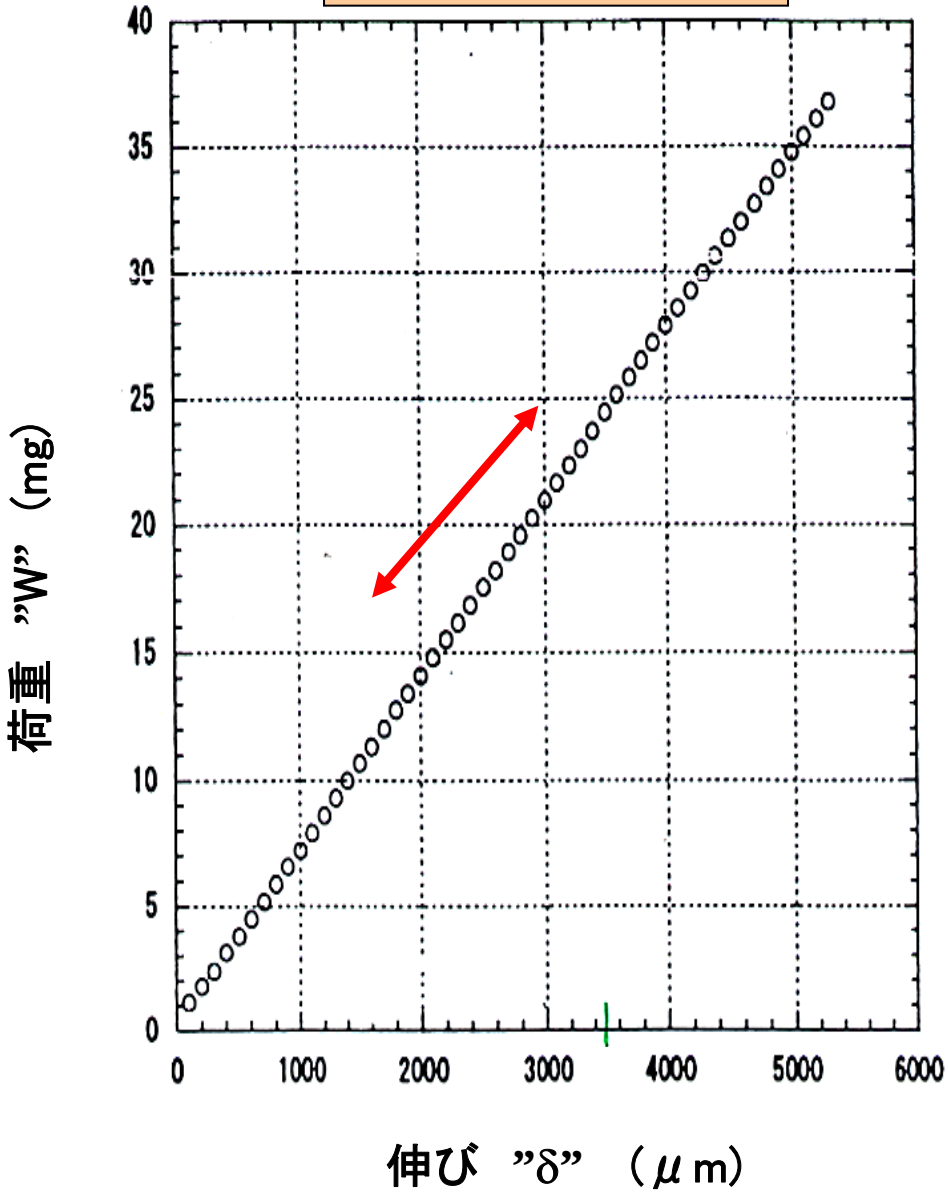
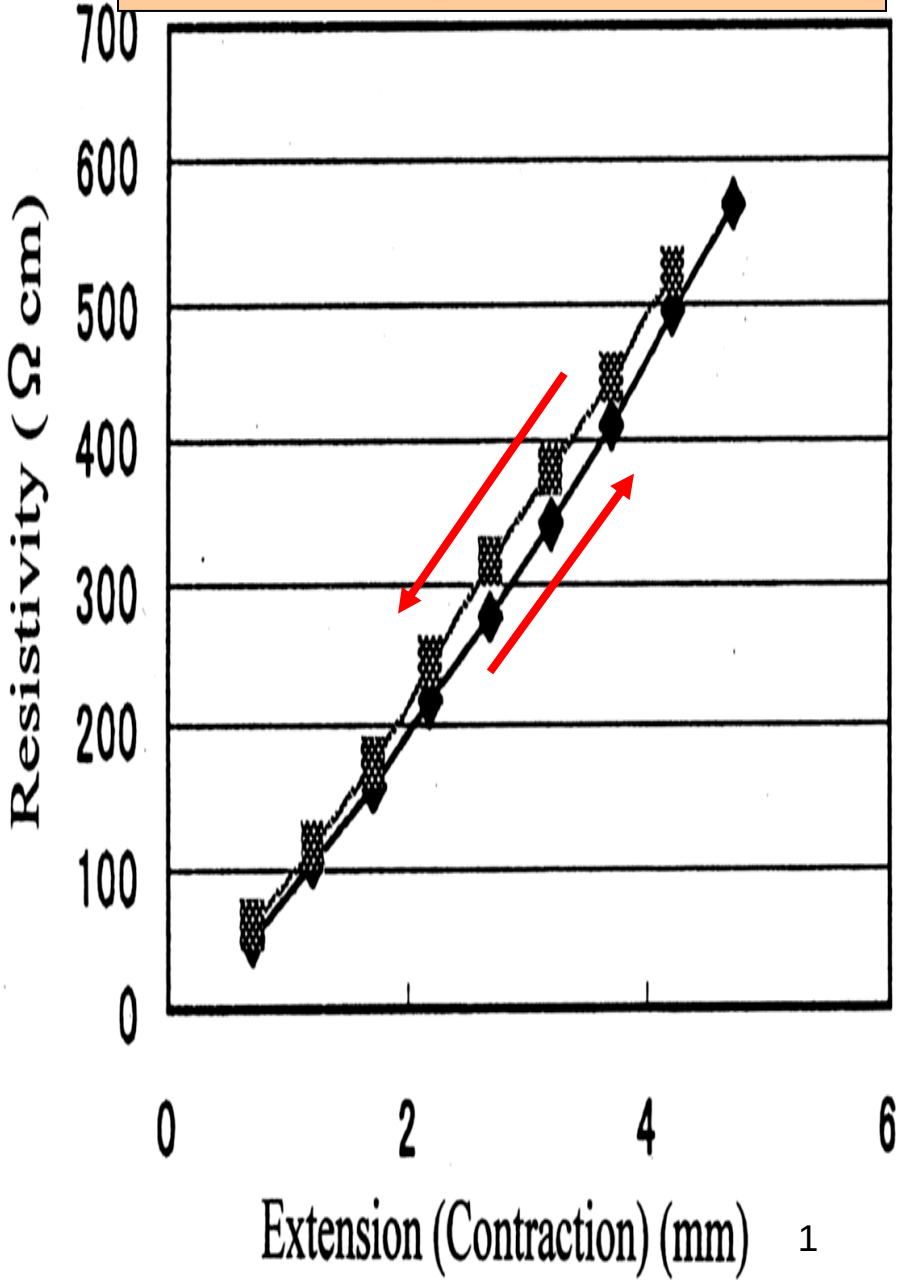
CMC のs-s 曲線

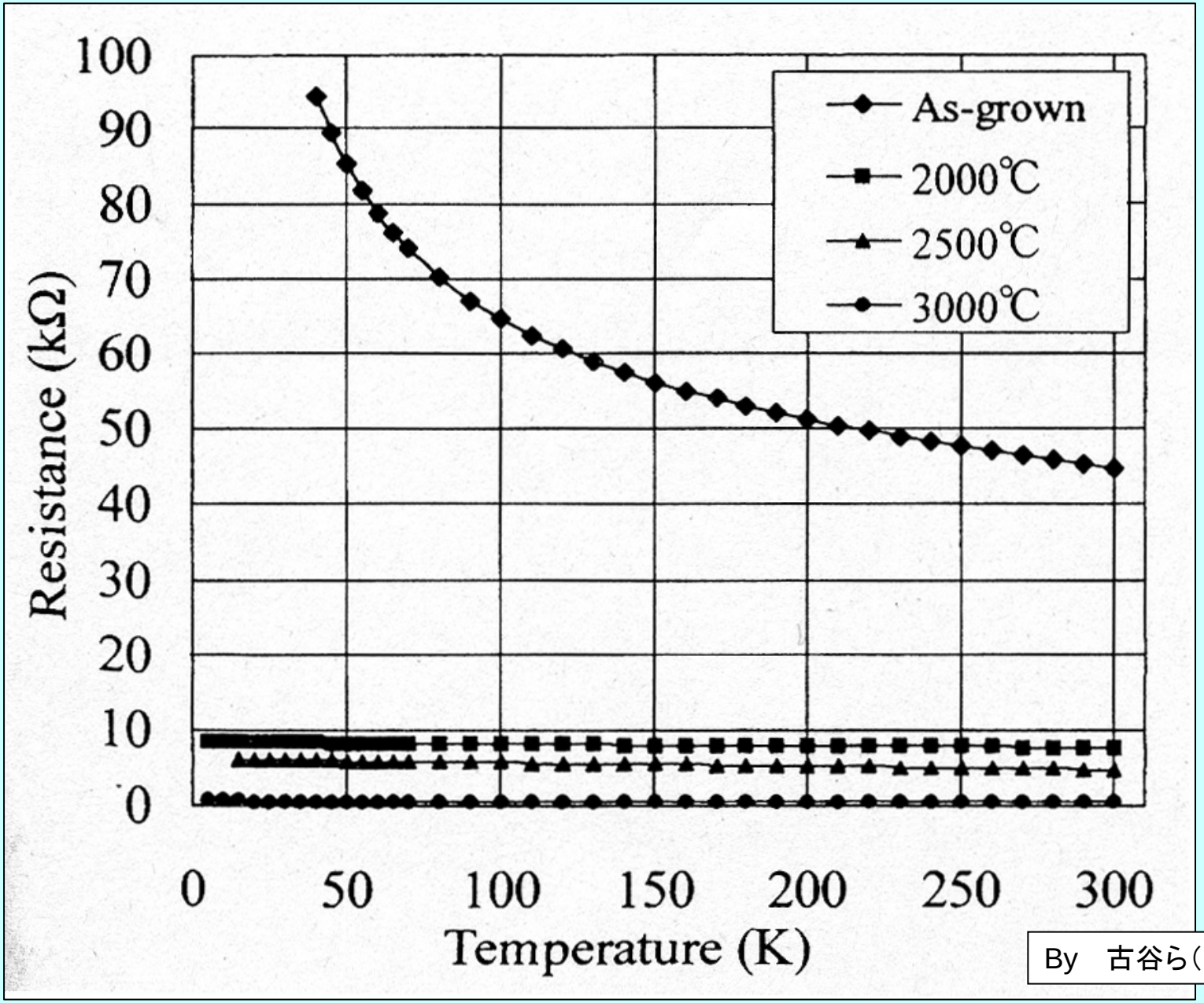


CMCの伸びと電気抵抗との関係



電気抵抗

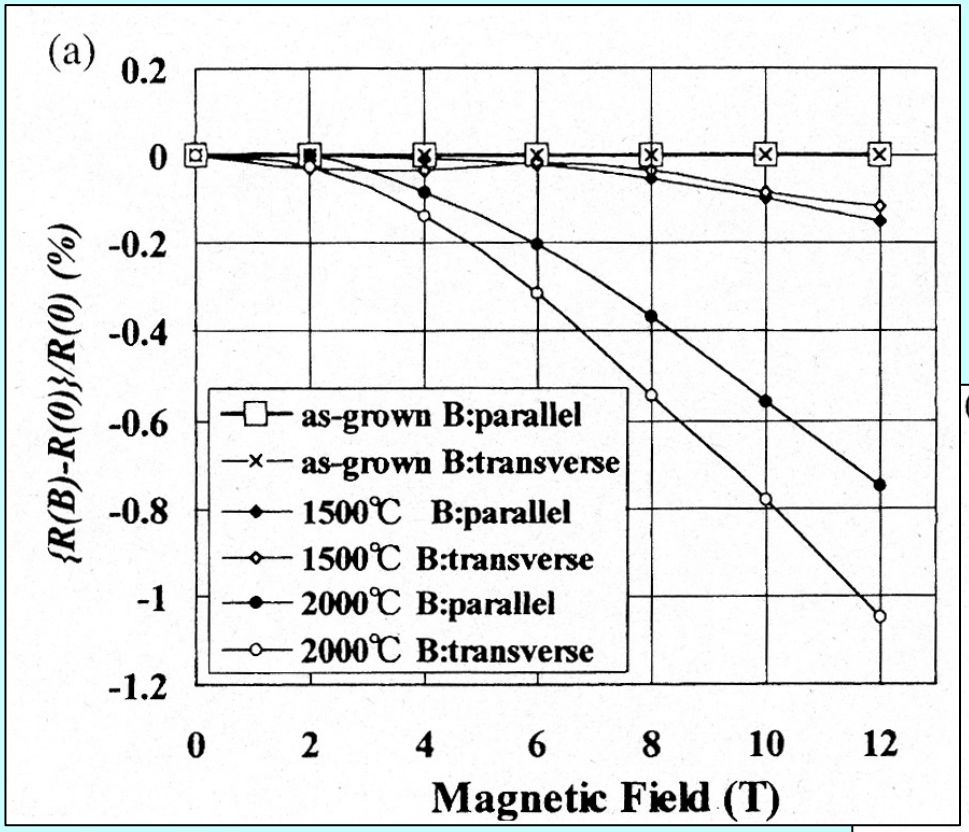
As-grown及び熱処理CMCの電気抵抗の温度依存性

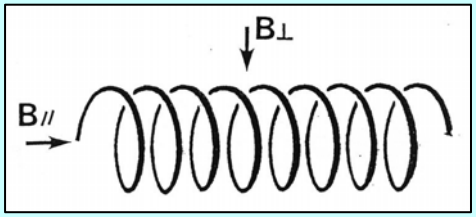


By　古谷ら（長崎大）

磁気抵抗

As-grown及び熱処理CMCの磁気抵抗の磁場強度依存(at 300K)





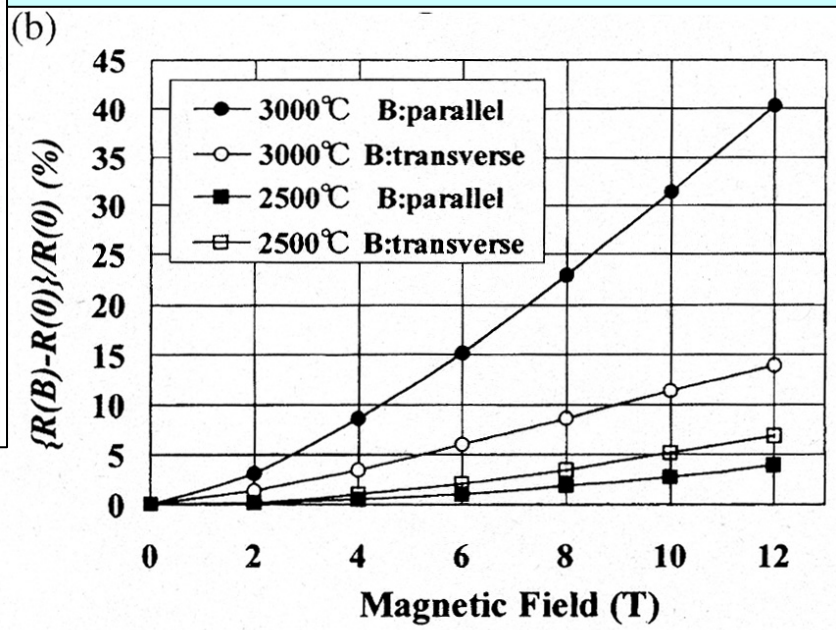


Fig. 5. Field direction dependence of magnetoresistance measured at 300 K (a) for the as-grown coil and the coils annealed at 1500 and 2000 °C, and (b) for the coils annealed at 2500 and 3000 °C.

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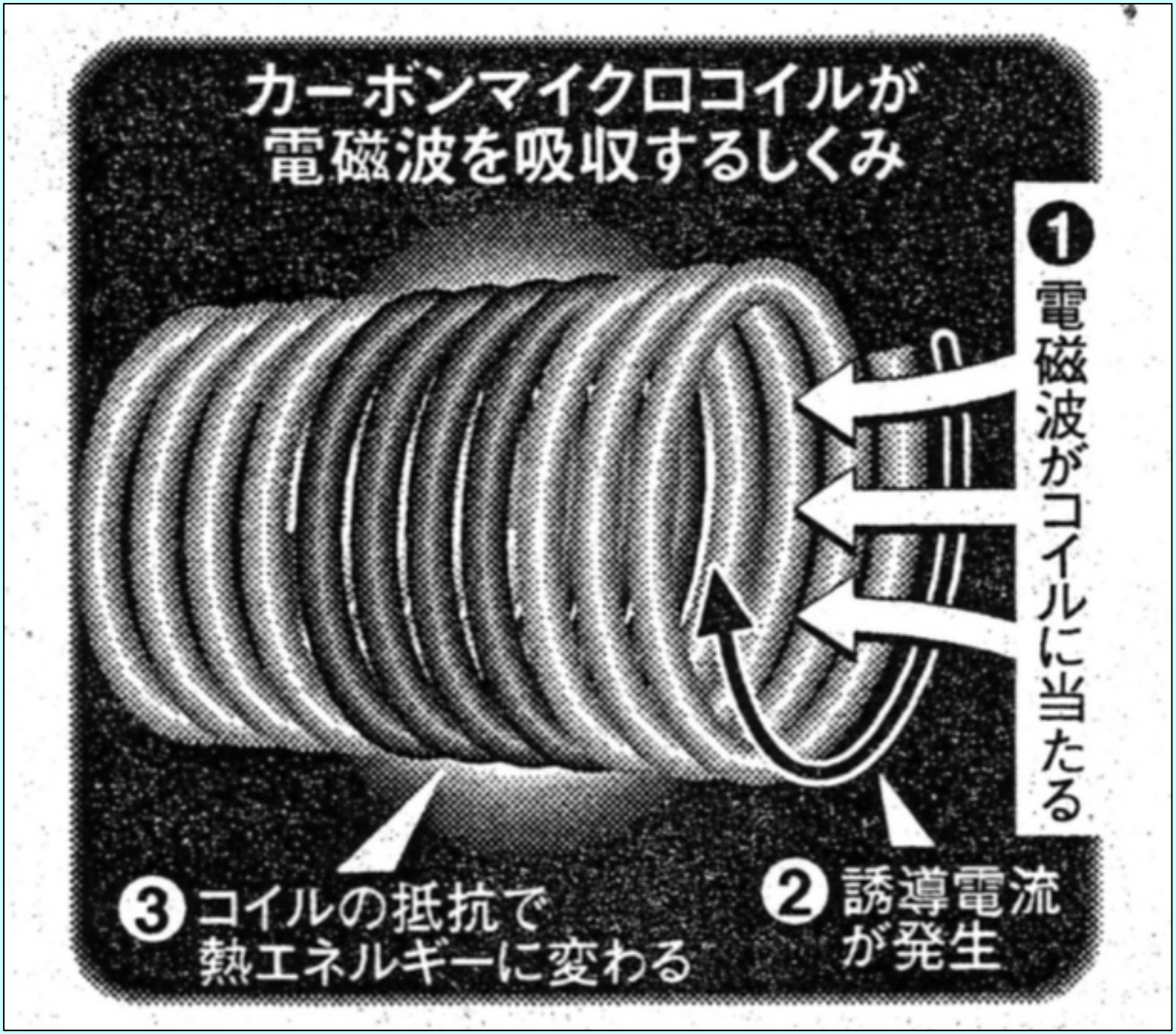

カーボンマイクロコイルが
電磁波を吸収するしくみ
❶電磁波がコイルに当たる
❷誘導電流が発生
❸コイルの抵抗で熱エネルギーに変わる

Generation of inductive electromotive force

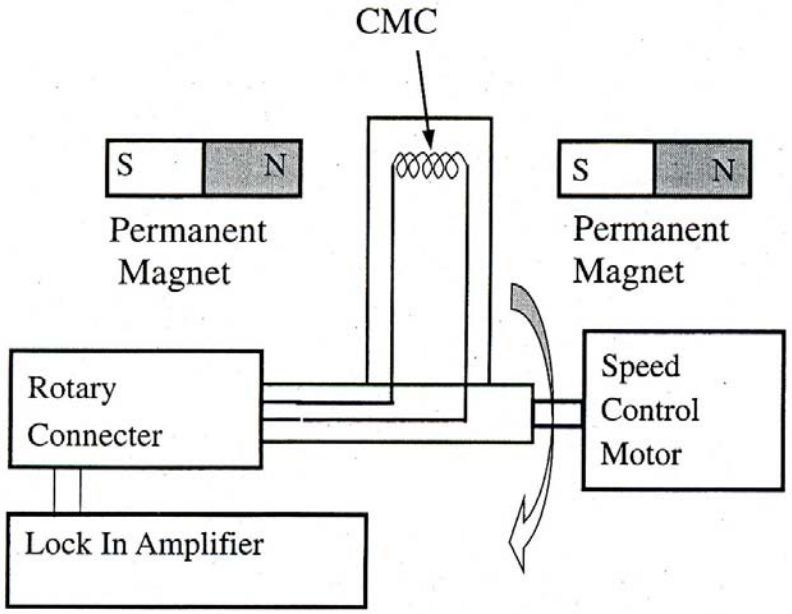


Fig. 2. Schematic of an apparatus used for the measurement of electromagnetic induction of the CMC in a static magnetic field.

Table I. Geometries and electric characteristics of CMC used.

Sensor No.	Electric resistance (kΩ)	Length (μm)	No. of Turns	Diameter (μm)	Resistivity (10^{-6} kΩ·m)
A	273	568	132	4	6.04
B	353	1114	202	5	6.22
C	1090	2300	534	4	5.96

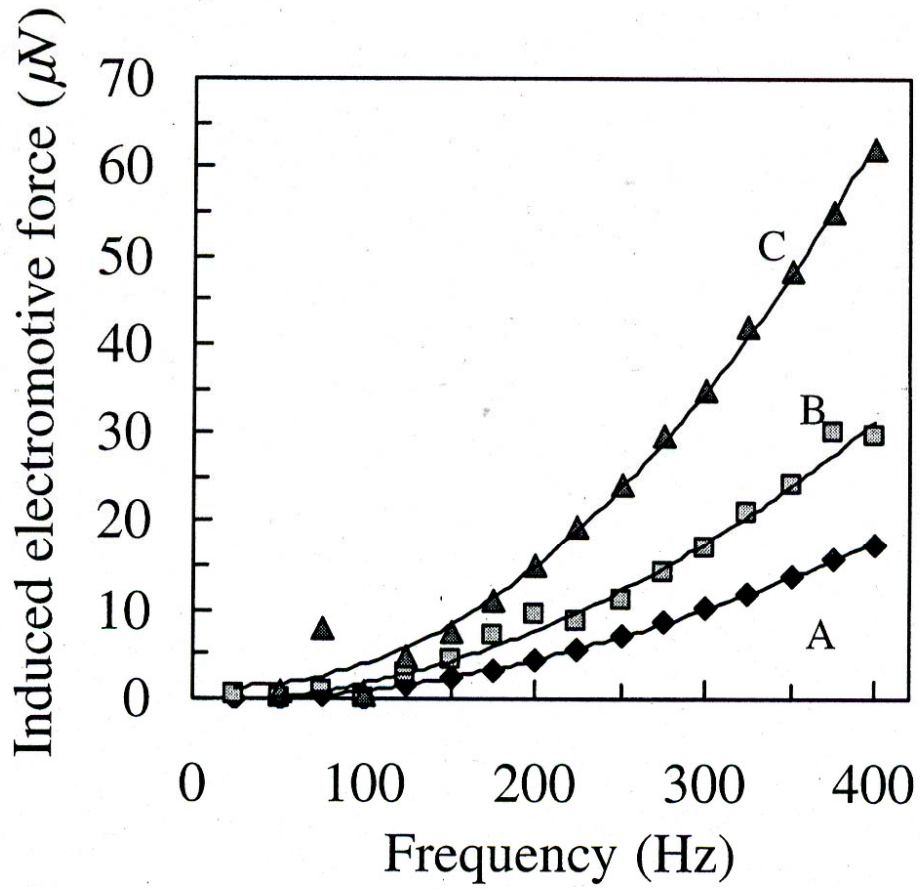
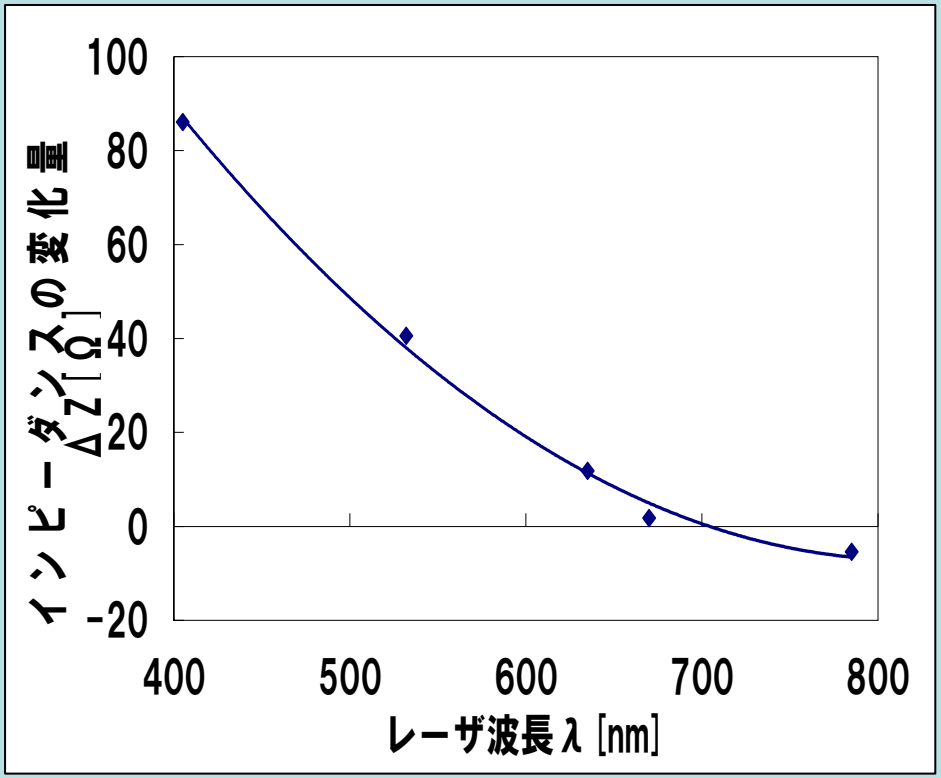


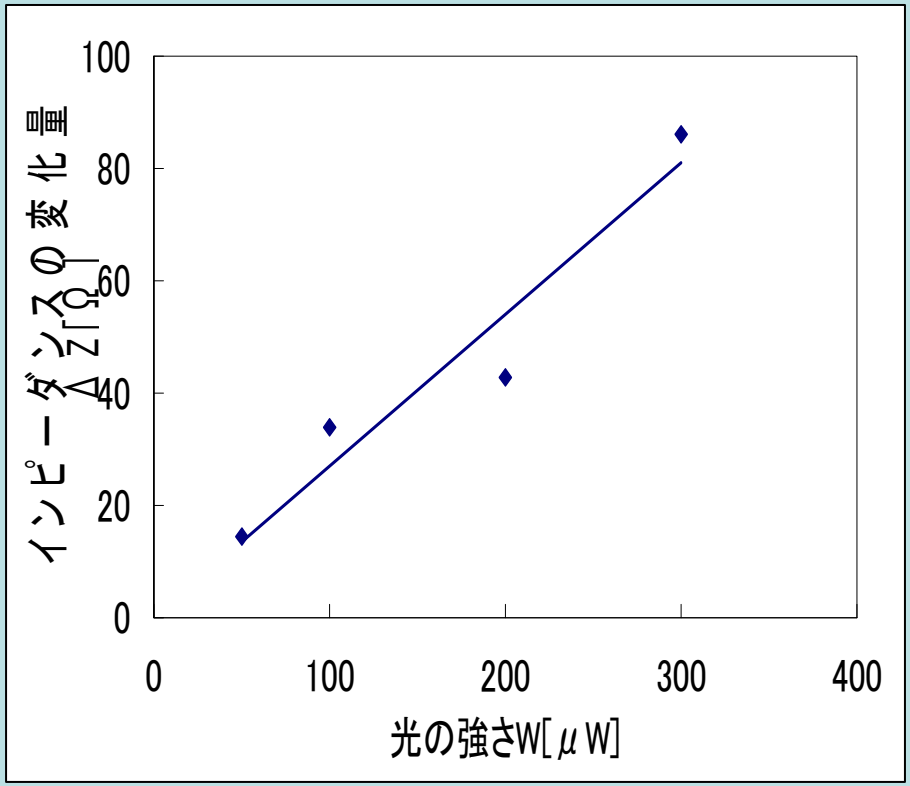
Fig. 3. Induced electromotive force of CMC generated by a dynamic magnetic field. Three different sensors, A, B, and C, were placed in a dynamic magnetic field generated by a pair of electromagnets, in which an alternating current was supplied. Magnetic flux density: 3.8 G.

By 津田ら（名工大）

CMCへのレーザー光照射（光学的特性）

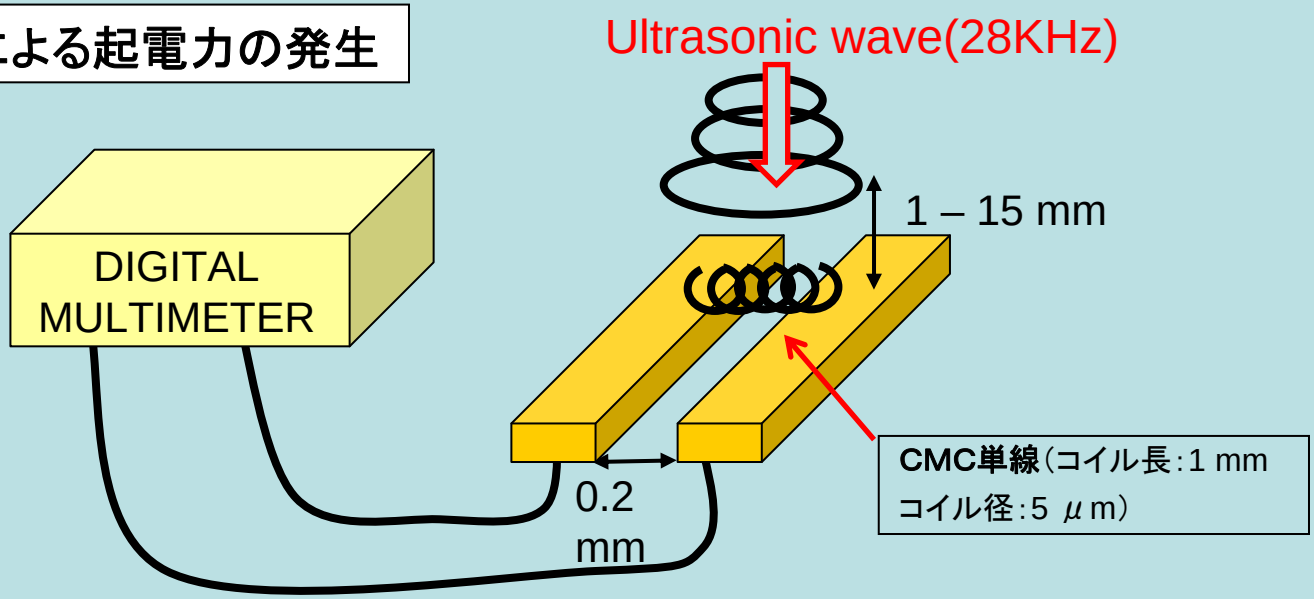


光波長－インピーダンス変化特性
(f=1kHz、光強度P=300μW)



光強度－インピーダンス変化特性
(f=1kHz、レーザ波長λ=405nm)

超音波照射による起電力の発生



照射距離：1mm
照射時間：5s