## Acknowledgements

(1) Kawana, Yoshiyuki at Sony invented the low collector On-Resistance P+NP junction type Bipolar transistor by thinning the back side of silicon wafer, Base Emitter Base Emitter Au Si Alloy Ag N+  $R_{on} = \sigma \frac{L}{\Delta}$ 2+ N+ Sn Ag (Solders) Header Collector (2) Kato, Toshio at Sony invented the silicon surface light etching and new SiO2 Passivation technique Base Emitter SiO<sub>2</sub> SiO2 N+ N Epitaxial N+ Collector

Masaru Ibuka with Dr. Dr. John Bardeen visiting Sony in Tokyo , 1990



Yoshiyuki Kawan the inventor of Sony Power Bipolar Transistor.

