

Invitation to 28th Chapter Meeting

We would like to announce that the forthcoming Chapter Meeting will be held as follows.

Venue : Meeting Room (2F) of New Building
System Science and Mechanical Engineering
Graduate School of Engineering, Tohoku University, Sendai

Date : Wednesday, 19th May, 1999

Program :14:00 "Single-well sonic imaging for high-resolution reservoir descriptions
around the borehole"
by Shinichi Watanabe (Schlumberger K.K.)

"Development of subsurface micro sensors in Tohoku University"
by H. Niitsuma, M. Nishizawa and K. Hirata (Tohoku Univ.)
(See details below)

16:00 Facility Tour of Venture Business Laboratory and Niitshuma Laboratory
(See details in attached pages)

17:00 Snacks Buffet (Beer Party at Top of New Building)

Note : Those who will attend the meeting may contact Tezuka, JAPEX
tel: 043-275-9311/ tezuka@rc.japex.co.jp

About the Topics:

Single-well sonic imaging for high-resolution reservoir descriptions around the borehole Speaker: Shinichi Watanabe (Schlumberger K.K.)

In the acoustic measurement domain, single-well sonic imaging bridges the gap between Seismic/VSP and conventional sonic logging by utilizing and analyzing full-waveform data. The goal of single-well sonic imaging is to delineate reservoir structure in the vicinity of the borehole with higher resolution than Seismic/VSP imaging. Seismic processing methods are adopted to analyze reflected and scattered signals from structure around the borehole.

BARS (Borehole Acoustic Reflection Survey) was proposed as an application of sonic imaging with the aim of imaging reflectors and fractures using a tool with a longer T-R spacing than conventional sonic tools. We will present BARS methodology including pre-job modeling, data acquisition, data processing, and interpretation.

Development of subsurface micro sensors in Tohoku University Speaker: H. Niitsuma, M. Nishizawa and K. Hirata (Tohoku University)

In this talk, the potential of subsurface micro sensing in various areas and current status of development of subsurface sensors, especially for micro seismic sensors in Tohoku University will be presented. Following to an overall introduction by Prof. Niitsuma, Mr Nishizawa and Mr. Hirata will present the details of two types of micro sensors. The prototypes of these sensors can be seen through the facility tour of Niitsuma Laboratory.

I will introduce and demonstrate the system.

['94-'95 Annual schedule of Chapter Meetings]

<i>May 23, 1994</i>	<i>Japan National Oil Corporation</i>
<i>July 25, 1994</i>	<i>Japan Petroleum Exploration Co.,Ltd</i>
<i>September 27, 1994</i>	<i>Japan Oil Engineering Co.,Ltd</i>
<i>November 29, 1994</i>	<i>Technical Research Center, Teikoku Oil Co.,Ltd</i>
<i>January 23, 1995</i>	<i>Indonesia Petroleum, Inc.</i>
<i>March 13, 1995</i>	<i>Waseda University</i>
<i>May 29, 1995</i>	<i>Japan Oil Development Co.,Ltd</i>
<i>September 21-22, 1995</i>	<i>Technology Research Center, Japan National Oil Corporation</i>

['95-'96 Annual schedule of chapter meeting]

<i>November 27, 1995</i>	<i>Idemitsu Oil Development Co.,Ltd</i>
<i>January 29, 1996</i>	<i>Geothermal Energy R& D Co.,Ltd</i>
<i>March 26, 1996</i>	<i>Arabian Oil Co.,Ltd</i>
<i>May 27, 1996</i>	<i>Japan Petroleum Exploration Co.,Ltd</i>
<i>September 26-27, 1996</i>	<i>Technology Research Center, Japan National Oil Corporation</i>

['96-'97 Annual schedule of Chapter meetings]

<i>November 25, 1996</i>	<i>Technical Research Center, Teikoku Oil Co.,Ltd</i>
<i>January 27, 1997</i>	<i>Indonesia Petroleum, Inc.</i>
<i>March 26, 1997</i>	<i>Waseda University</i>
<i>May 26, 1997</i>	<i>Japan Oil Development Co., Ltd.</i>
<i>September 24-25, 1997</i>	<i>Technology Research Center, Japan National Oil Corporation</i>

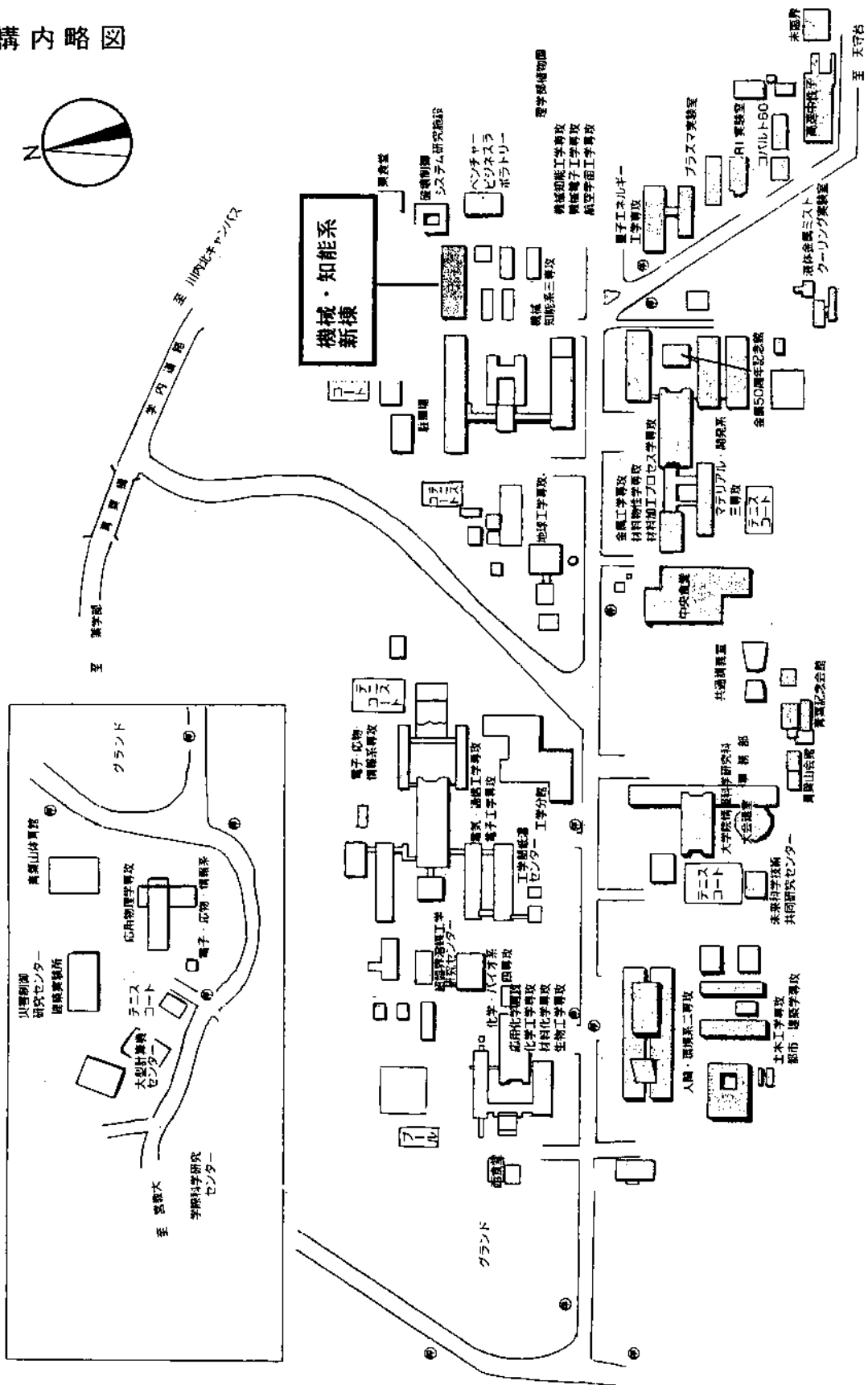
['97-'98 Annual schedule of Chapter meetings]

<i>November 25, 1997</i>	<i>Idemitsu Oil Development Co.,Ltd</i>
<i>January 26, 1998</i>	<i>Geothermal Energy R& D Co.,Ltd</i>
<i>March 30, 1998</i>	<i>Schlumberger K.K.</i>
<i>May 25, 1998</i>	<i>Japan Petroleum Exploration Co.,Ltd</i>
<i>September 24-25, 1998</i>	<i>Technology Research Center, Japan National Oil Corporation</i>

['98-'99 Annual schedule of Chapter meetings]

<i>November 27, 1998</i>	<i>Technical Research Center, Teikoku Oil Co.,Ltd</i>
<i>January 27, 1999</i>	<i>Indonesia Petroleum, Inc.</i>
<i>March 31, 1999</i>	<i>Waseda University</i>
May 19, 1999	Tohoku University
<i>September 29-30, 1999</i>	<i>Technology Research Center, Japan National Oil Corporation</i>

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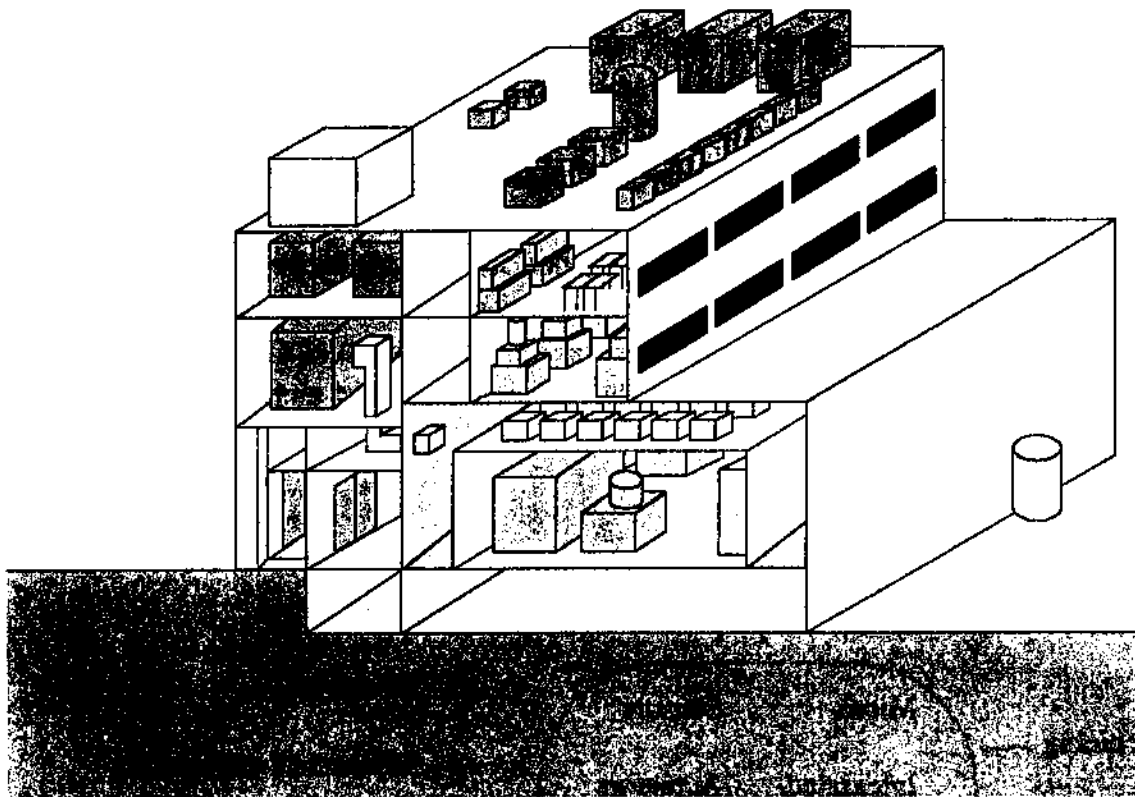


Venture Business Laboratory (VBL)

Tohoku University

Development of Sensors and Micromachines

(Micro Nano-Machining)



Jan. 1997

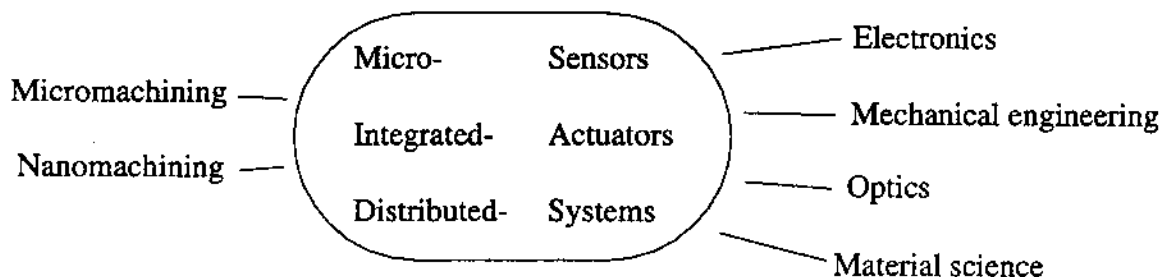
Objectives of VBL in Tohoku University

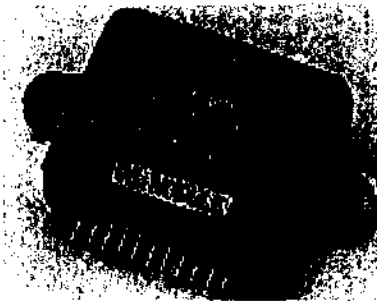
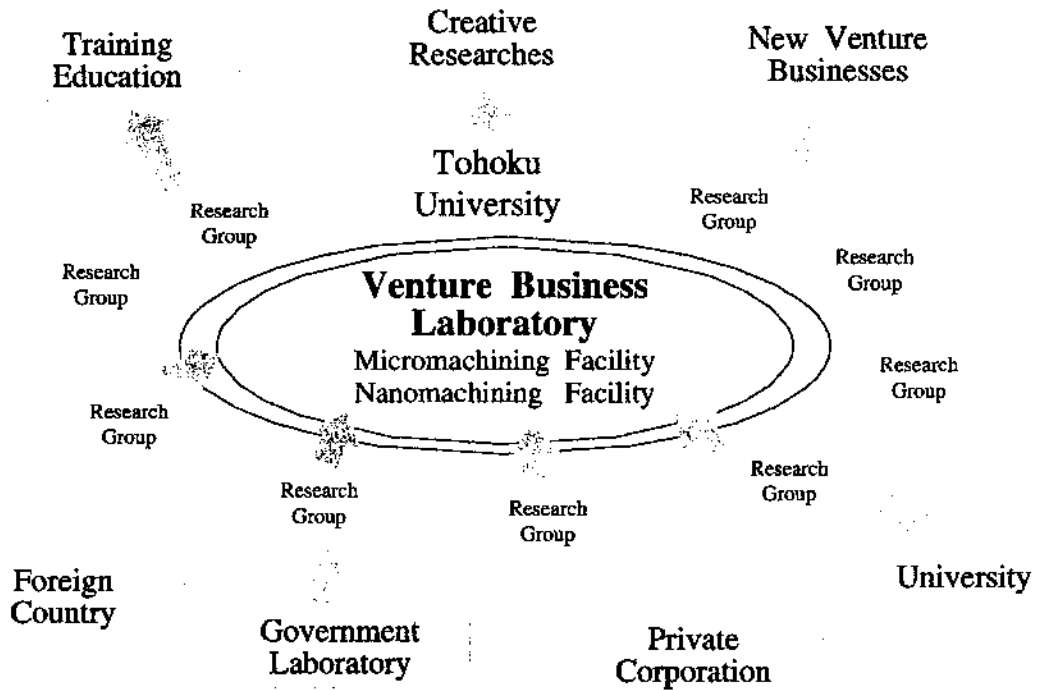
VBL in Tohoku University was established by the fund for creative research projects in the 1995 fiscal year supplementary budget of Japanese Government. The responsibilities for research and development in VBL are shared amongst all the faculties of Tohoku University. The faculty of Engineering maintains the prime responsibility for the VBL. VBL's primary mission is educational and to provide the facilities and working environment that makes possible graduate education through research in the area of “**Sensor and Micromachine technologies**” (Micro- and Nano-Machining) and “**Integrated Microsystem technologies**”. The objectives of the VBL are epitomized in the three major roles of the laboratory as stated below.

- 1) Promoting creative research and practical development that generate new business.
- 2) Bringing up of creative person who has advanced professional ability and venture spirit.
- 3) Providing graduate school with facilities for education and research including large-sized special equipment.

For the above purposes, a new building for “sensor and micromachine” and “integrated microsystems” has been constructed in Aoba-yama campus in addition to improving and rearranging the existing micromachining facilities. The building includes LSI fabrication facilities. We push forward with new idea from young researchers, especially graduate school students, and train the student until he has a wide variety of professional ability through interdisciplinary cooperation of the individual departments and graduate schools. The cooperative research projects accepting researchers from industries, universities and governments are promoted actively. International exchange through the fellowships for foreign scientists and dispatch of young scientists for research abroad are performed actively. The scientific and technological results obtained from the VBL will be distributed worldwide.

Major research fields in VBL





Integrated capacitive pressure sensor
(Toyoda Machine Works LTD)



pH, CO₂ monitor catheter
(Nippon Kohden Corp.)



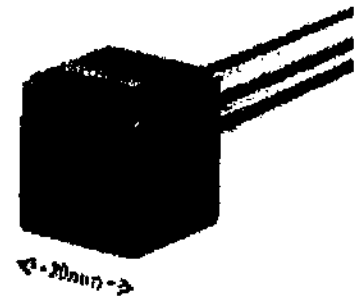
Multi-link active catheter



Integrated electrostatic servo
accelerometer



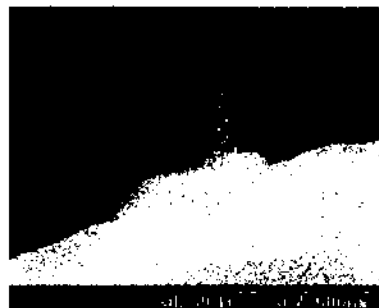
Silicon tuning fork fabricated using
RIE



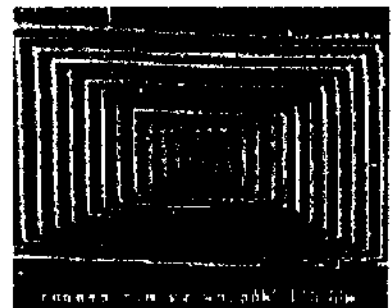
Bakable microvalve



1 μ m thick silicon cantilever parallel to
a glass for capacitive AFM probe



Silicon nano-wire grown by field
evaporation in UHV-STM



Silicon self-supported nano-structure
fabricated by STM drawing