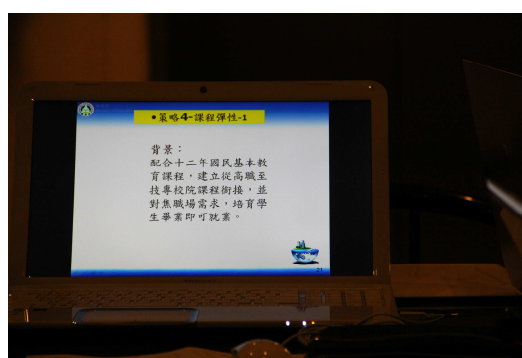
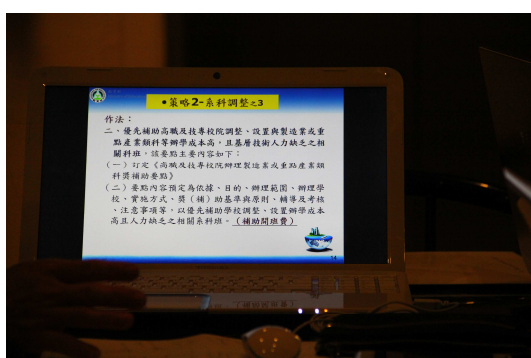
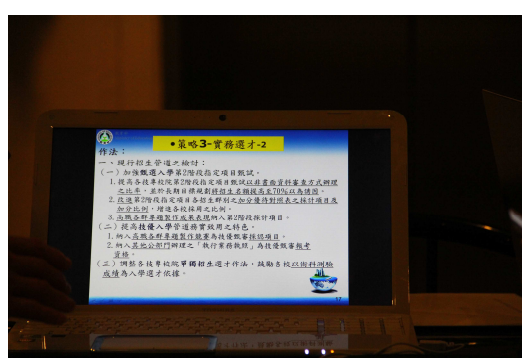


## 2013 年 3 月 6 日參訪結束討論

2013年3月6日參訪行程結束，當天晚上教育部專門委員蕭玉真博士於下榻旅館(Days Inn & Suites)召集會議，討論參訪心得。此外，蕭博士亦分享教育部技職再造方案第二期之策略與作法。



## 聖・安東尼奧之印象

聖・安東尼奧為美國第七大城，人口約 130 萬，位處由休斯頓、聖・安東尼奧、達拉斯及奧斯汀等都會區組成之「德州三角區域」西南端。聖・安東尼奧之著名景點包括：阿拉摩(以德州革命運動中，1836 年 2 月 23 日到 3 月 6 日發生的阿拉摩戰役聞名)、河濱步道(蜿蜒鬧區)及美國塔(1968 年世界博覽會 HemisFair 主題建築)



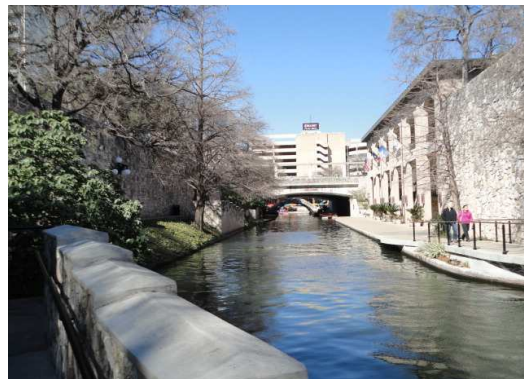
阿拉摩



1836 年阿拉摩戰役圖



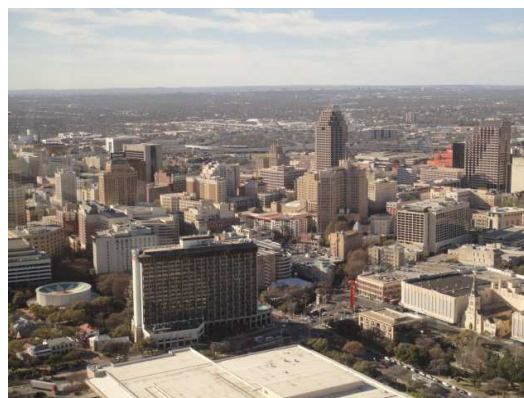
河濱步道地圖



河濱步道



美國塔標誌



從美國塔俯視市區



## **Report on the Track: IP Trends and Successful Practices, 2013 AUTM, San Antonio, Texas**

by **Sheng-Fu Peng, Tsair-Fwu Lee, Rong-Jer Lai (KUAS)**



**Group picture at AUTM 2013**

### **Introduction:**

The track “IP Trends and Successful Practices” consists of the following sessions:

“A1 Controlling Patent Costs While Protecting More Technologies”,

“B1 Mad About Mobile - Commercializing Mobile Apps in Universities”,

“C1 Positioning Your Patent Portfolio for Successful Licensing”,

” D2 Universities As Patent Enforcers”,

” F2 The Prometheus Factor: A Technology Transfer Adventure Coming to a University Near You”,

“G5 Plant Breeding Research: Commercialization and Economic Impact” and

“ED1: Implementation of the AIA, SBIR-STTR Reauthorization and JOBS Act”,

among which the educational session ED1 is more related to the legal system in USA than that in Taiwan. Instead, another session “ED8 The Art of Contract Design: Reviewing and Drafting CDAs, MTAs, SRAs and IIAs” was attended.

## Summary:

### Session A1: Controlling Patent Costs While Protecting More Technologies

The universities in USA face the challenge of expensive international patent protection, so that it is almost impossible to proceed without a licensee. According to the data mentioned in the session, more than 75% of cases go abandoned, more than \$20,000 in patenting costs were wasted, and 2 ½ years to find a licensee is a very short time.

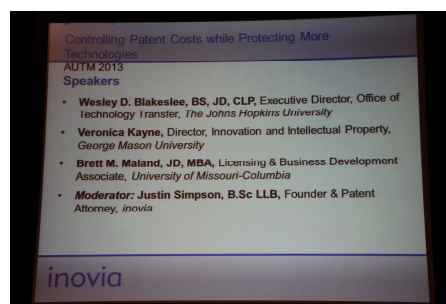
Some solutions and experiences from the invited speakers were put forward and shared, for example,

“Selectivity models for evaluating which technologies to patent” come from George Mason University. The university should focus on the inventions with commercial potential, i.e. patent only where patent would enhance commercial value of invention. They should be relatively broad; able to detect infringement; strong claims. Besides, the patents should be re-evaluated at every stage.

“Negotiate with attorneys to aggressively reduce the outside costs, and create in-house patent counsel group” (from Johns Hopkins University),

” For navigating the foreign filing process, consider the Status of the IP: — evaluate licensee’s performance if investing in licensee; — evaluate licensee’s plan for selecting countries; — Track costs and develop metrics” (from University of Missouri - Columbia).

Here we learn practical methods for controlling patent costs as well as how to establish a business relationship with foreign affiliates. Groups such as the University Law Consortium might be created to help universities consolidate their foreign patent work with one firm in each country. Programs like this can actually increase the quality of work while lowering the costs of foreign patent prosecution.



Moderator and speakers of Session A1



## **B1 Mad About Mobile - Commercializing Mobile Apps in Universities**

In the universities of USA there are more and more invention disclosures based on mobile apps, one form of software applications. For example, “Verbal Victor<sup>TM</sup>” from Wake Forest University, an augmentative and alternative communication software application for the Apple iPod Touch, iPhone, or iPad. With their low pricing structure (\$0.99~ \$9.99 per app sale) and limited outlets (i.e., App Store), mobile apps do not fit the standard licensing models, yet there is a great desire to commercialize them.

During this session practical tips and solutions for commercializing apps for both private and public institutions were addressed together with examples of how three different schools approached this latest frontier of technology transfer. Concrete ideas related to protection, insurance issues, liability, licenses required, the role of technology transfer under various approaches, pricing approaches, benefits to the institution, and dealing with the various platforms (Apple and Android) were learned.

For example, Wake Forest University (WFS) sets up a for-profit subsidiary, Seed Stage Associates (SSA). WFS licenses Verbal Victor to SSA, and SSA purchases Apple Developer’s License and sells Verbal Victor through App Store, and the royalty is paid by SSA to WFS. The following issues were raised, such as: who updates the software? Does the patent policy of the university contemplate app development? Does the university have the expertise to navigate the Apple process? How does the university account for the royalty distribution for multiple apps?

On the other hand, University of Michigan considers mobile as a driving innovation, and emphasizes on “how to energize the campus, capitalize on trends, and create new IP opportunities”. For the idea generation, they create and support development contests, but don’t require ownership of apps to participate, market software and new app support ability. For development support, they work with in-house development departments and faculty teaching courses.



Speakers of Session B1

## C1 Positioning Your Patent Portfolio for Successful Licensing

This session is more related to the legal system reform of USA, i.e. new provisions of the America Invents Act (AIA) and recent U.S. Supreme Court decisions in the aspect of patent law.

Topics to be discussed included: impact of the AIA on patent licensing strategies; pros and cons of licensing issued patents v. pending applications; impact of new nine-month post grant review on technology transfer office filing procedures; foreign filing country selection strategies to satisfy potential partners; maximizing patent portfolios for potential partners; Supreme Court's issuance of far-reaching opinions including the *Prometheus*, *Bilski* and *Myriad* cases and their impact on patent licensing.

On September 16, 2011, President Obama signed America Invents Act into law. Key changes include: 1 switching from the principle of "first-to-invent" to the principle of "first-inventor-to-file"; 2 introducing post-grant patent review; 3 allowing third-party prior art submissions; 4 changes in USPTO operations and funding.

Post-Grant Review provides 9-month window after patent grants for third parties to challenge patent on any grounds of invalidity. Third-Party Prior Art Submission allows third parties to submit references and statements of relevance to USPTO examiner during prosecution. The pros sound like: it produces higher-quality patents and shifts challenging arena from courts to USPTO, allowing patentability issues to be resolved earlier, as well as minimizes costly litigation. The cons could be: it favors the companies with resources to monitor competitors, and the patents will become harder to get and easier to challenge, and the result is more uncertainty of patent.

On the other hand, the impacts of US Supreme Court's opinions on the patent licensing are discussed: *KSR v. Teleflex*, April 2007 (on patent obviousness); *Bilski v. Kappos*, June 2010 (on patentability of a process); *Board of Trustees of Leland Stanford Junior University v. Roche Molecular Systems, Inc.*, June 2011 (on patent assignments) ; *Mayo v. Prometheus*, March 2012 (on patentability of method and diagnostic claims).

## D2 Universities As Patent Enforcers

The universities in USA are increasingly suing to enforce their patents. In other words, a university alleges infringement of a patent it owns in whole or in part, by itself or with one or more exclusive licensees or co-owners. After the speaker's report 328 lawsuits have been filed from 1973 — 2012, and 69 different universities were involved in these lawsuits. More lawsuits were filed in 2012 (n=43) than any prior year. The main players named are WARF (Wisconsin Alumni Research Foundation), Texas, MIT and California, each has more than 20 cases.

The costs and risks of such litigation are far from trivial with legal fees averaging \$3.5 – \$6 millions per case. Some information provided by the speaker looks like the following:

| Patent litigation "good-guess" times from filing complaint to:  | Patent litigation costs   |
|---|---|
| <ul style="list-style-type: none"> <li>• Case planning conference: 3 months</li> <li>• Claim construction hearing: 10 months</li> <li>• Completion of fact discovery: 18 months</li> <li>• Completion of expert discovery: 24 months</li> <li>• Summary judgment submitted: 25 months <ul style="list-style-type: none"> <li>• Most patent case (&gt;95%) resolved before trial</li> </ul> </li> <li>• Trial: 32 months</li> <li>• Appeal opinion: 54 months</li> </ul> | <ul style="list-style-type: none"> <li>• Less than \$1 Million at Risk <ul style="list-style-type: none"> <li>• End of discovery \$350,000</li> <li>• Inclusive, all costs \$650,000</li> </ul> </li> <li>• \$1-25 Million at Risk <ul style="list-style-type: none"> <li>• End of discovery \$1,250,000</li> <li>• Inclusive, all costs \$2,000,000</li> </ul> </li> <li>• More than \$25 at Risk <ul style="list-style-type: none"> <li>• End of discovery \$3,000,000</li> <li>• Inclusive, all costs \$4,500,000</li> </ul> </li> </ul> |

Initiation of patent enforcement litigation by universities raises many questions. How are these decisions made? Who makes these decisions? What considerations guide the decisions? To what extent should licensees have primary decision-making authority? What strategies should universities seek to follow in such matters? What public policy considerations come into play with universities as plaintiffs? Is the increased emphasis on commercialization of university research likely to lead to more efforts by universities to enforce patents and if so, what challenges and issues may be anticipated? The findings of the speaker show that few universities have established



guidelines to follow in determining whether to participate in litigation, and few universities set aside money for potential use as a plaintiff in patent infringement litigation.

## **F2 The Prometheus Factor: A Technology Transfer Adventure Coming to a University Near You**

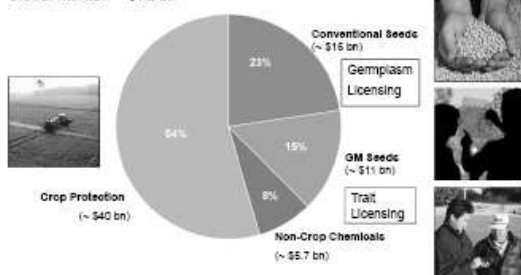
This session proceeded in the form of scenes in a play and discussed the complex situation of IP engaged in the field of biotechnology and potential drugs. The issues include: 1 the merits of patenting (i.e. potential IP value of biotech); 2 maintaining researcher interest (i.e. How to keep researcher engaged in helping to patent the molecules, drugs, diagnostic assay, etc.? The researcher should be helped or encouraged to start his own company?); 3 prior disclosure and patent timing/cost (i.e. Prior disclosure of the research results in the form of poster or slide show at an upcoming scientific meeting, or on personal blog etc. should be concerned?); 4 licensing and development challenges in exploiting an early stage technology; 5 “unrealistic” expectations of foundation; 6 implications of *Stanford University* case (on material transfer agreement, MTA and assignment of ownership rights); 7 potential “NIH collaborator” (on Bayh-Dole compliance issues).

## **G5 Plant Breeding Research: Commercialization and Economic Impact**

The speaker from the industry, *syngenta* talked about the germplasm (i.e. a collection of genetic resources for an organism) licensing. The speaker from the University of California (UC) shared some facts about UC plant variety licensing, 117 varieties currently licensed, and the plants royalties in FY 2012 amount to \$ 9.46 millions. The speaker from the University of Cornell introduced new plants with improved disease and insect resistance, as well as cold tolerance to the public, including: alfalfa, apples, apple rootstocks, cucumbers, grapes, etc. and showed the total plant variety licensing revenues in FY 2012 (about \$460K). During the session the vital nature and big business of plant variety research were discussed, for example, the royalty bases — by propagation or by production? Where in the value chain can/should the university capture value? By propagation, it is one-time, but easy to count, and by production, it is on-going, but can be problematic (per tree/per acre/per box? farm gate/distributor/retailer? etc.). In addition, the issue of trademark was also addressed.

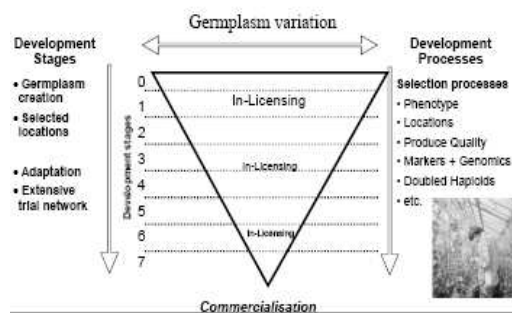
## Agribusiness Global Market Overview

Global market: > \$72 bn



Source: Syngenta Analysis, Philip McDougall

## Product development approach



## Some challenging situations

- Marketing Order Boards/grower support
- Royalty base – propagation or production?
- Success has its downsides!
- Controlling access to plant material
- Distinguishing closely related varieties
- Selecting and managing trademarks

UNIVERSITY OF  
Glasgow  
Glasgow, Scotland

AGM Annual Meeting 2011  
March 2, 2011

## Plant Variety Licensing Revenues

Total FY2012 royalties ≈ \$460K

- Veg. Crop varieties & licensed lines (41) ≈ \$115K
- Potato varieties (14) ≈ \$67K
- GENEVA® Apple Rootstock varieties (4) ≈ \$63K
- Grape varieties (8) ≈ \$17K
- Strawberry varieties (4) ≈ \$11K

John Logie • Plant Variety Licensing and Marketing AGM 2012 March 2, 2012

CCTEC (CROP CROPPING TECHNOLOGY)

Content extracts of session G5

## ED8 The Art of Contract Design: Reviewing and Drafting CDAs, MTAs, SRAs and IIAs

The target audience of this educational session is called “fundamental level”. During the session the components and principles for drafting various contracts, i.e. confidential disclosure agreement (CDA, also known as non-disclosure agreement, NDA), material transfer agreement (MTA), sponsored research agreement (SRA) and inter-institutional agreement for joint invention management (IIA, or JIA) were addressed. Such concepts and training are essential and important for the faculty.



Lecture on MTA



Lecture on JIA

## Observation at the Exhibition Hall, 2013 AUTM





## **Report on visiting the Office of Intellectual Property Management, Center for Industrial Partnerships, University of Houston**

On March 6, 2013 the Delegates of RIAC, MOE visited the Office of Intellectual Property Management, Center for Industrial Partnerships, University of Houston (UH) with the aid of Professor Keh-Han Wang, Director of Civil Engineering Graduate Program, UH. Dr. Mark S. F. Clarke, Vice-President for Technology Transfer made a presentation with the title “Research and Innovation at the University of Houston” before the delegates and discussed the following topics in an interactive manner: 1. how to connect government, industry and campus for upgrading development and research function? 2. how to help and enforce the technology transfers? 3. how to assist enterprises and colleges in further development of new businesses?

Dr. Clarke began the presentation with the functions of the university, i.e. to prepare highly skilled educated citizen; to create new knowledge; to create jobs (technologies, processes, products); and to contribute to economic growth and global competitiveness, and emphasized the role of university as an economic engine. He showed the considerations of top American research universities, for example, total research expenditures, federal research expenditures, national academy membership, faculty awards, etc. and demonstrated the accomplishments of UH in FY 2012.

Two major fields of UH, as shown in the presentation, are energy-related and health-related enterprises. UH totally owns 152 pieces of active US patents and 159 pieces in pending, among which there are 38 issued patents in the energy-related field, and 61 the health-related. Impressively, there are 26 active licenses in the energy-related field in FY 2008 to FY 2012.

One of the strategic goals of UH is that the research expenditure would amount to \$200 millions by 2020, which would be accomplished through increasing federal fund, increasing funding from for-profit entities, increasing royalty income, and investing in STEM (science, technology, engineering and mathematics) fields, creating adequate infrastructure, aggressively commercializing technology, as well as meeting Houston’s and regional economic development and work-force development needs, in short, by the way of extramural funding and technology commercialization.

UH’s strategic plan to encourage faculty to generate and create commercial value, the so called innovation pipeline, can be divided into two ways: intrinsic motivation (discovery, research funding source) and extrinsic motivation (public recognition, IP

as scholarship in promotion/tenure decisions, revenue sharing). On the other hand, by the internal support (Office of Interdisciplinary Program Management, OIPM activities, Bauer MBA market assessments, UH technology gap fund, etc.) and the external support (seek/identify external opportunities, Wolfe entrepreneurship business plan program, NSF I-CORPS support, SBIR/ STTR, i.e. Small Business Innovation Research, and Small Business Technology Transfer coaching, etc.) to enable faculty to generate and create commercial value. In other words, to strengthen the connection system between R&D, incubation platform and entrepreneurial culture, support and training.



Civil /Environmental Engineering



Civil /Environmental Engineering



Civil /Environmental Engineering



Civil /Environmental Engineering



Campus of UH



Campus of UH



Campus of UH



Campus activity



Model of Campus of UH



Meeting with Dr. Mark S. F. Clarke

### DOR Guiding Principles

"For I dipped into the future,  
 far as human eye could see,  
 Saw the Vision of the world,  
 and all the wonder that would be."  
 - Tennyson

*"Knowing is not enough; we must apply.  
 Willing is not enough; we must do."  
 - Goethe*

UNIVERSITY of HOUSTON RESEARCH

### Summary of Accomplishments-2012

Proposals Submitted: \$500.9 million (1172 Projects)  
 Awards Received : \$106.9 million (786 Projects)  
 Royalty/Licensing Revenue: \$12.5 million  
 Active U.S. Patents: 152  
 Pending Patents: 159  
 Fulbright Scholars: 3  
 NSF CAREER Awardees: 8







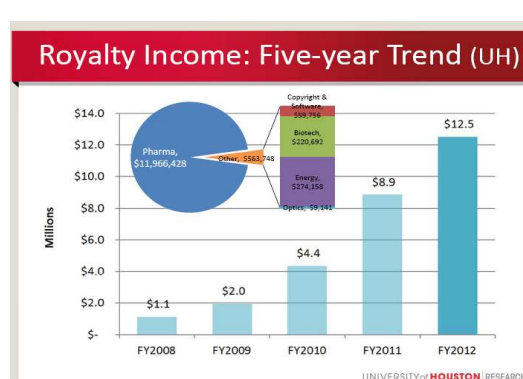



UNIVERSITY of HOUSTON RESEARCH

### Top American Research Universities

1. Total Research Expenditures
2. Federal Research Expenditures
3. National Academy Membership
4. Faculty Awards
5. Doctorates Awarded
6. Postdoctoral Appointees
7. National Merit and Achievement Scholars
8. Endowment Assets
9. Annual Giving
10. SAT Scores

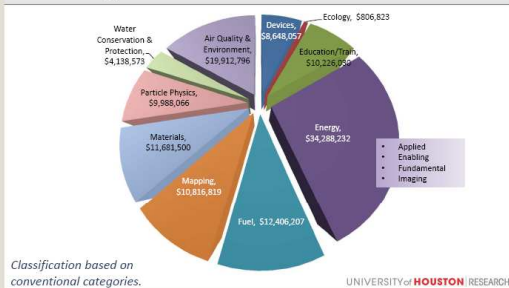
UNIVERSITY of HOUSTON RESEARCH





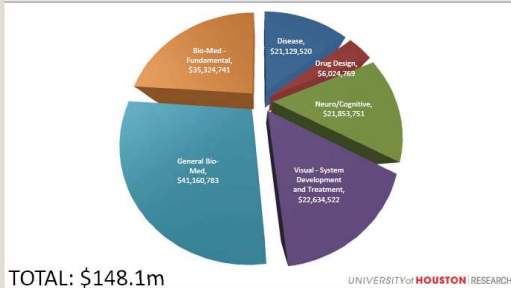
## Funding for Energy Projects

Total UH Energy Awards FY 2009 to FY 2012, by cluster: **\$122.91 million**



## Funding for Health/Life Sciences Projects

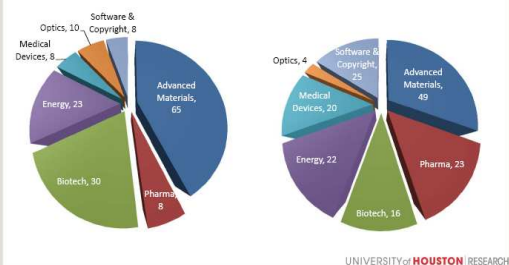
FY 2009 to FY 2012



## UH Intellectual Property by Commercial Sectors

Total: **152**

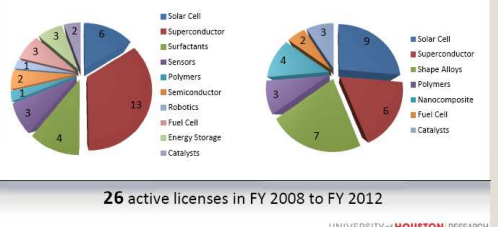
Pending: **159**



## Energy-Related UH Intellectual Property

U.S. Patents Issued: **38**

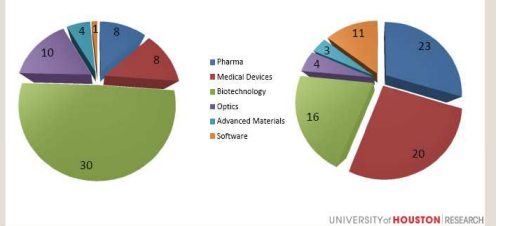
U.S. Patents Pending: **34**



## Health-Related UH Intellectual Property

U.S. Patents Issued: **61**

U.S. Patents Pending: **77**



## Strategic Goal

**\$200 Million Research Expenditure by 2020**

**Increase federal funding**

- (highly competitive endeavors)
- Center grants
- Multi-disciplinary grants
- Applied/Translational Research

**Increase funding from for-profit entities**

**Increase Royalty income**

**Invest in STEM fields**

- recruit excellent faculty
- provide ample start-up
- build core facility

**Create adequate infrastructure**

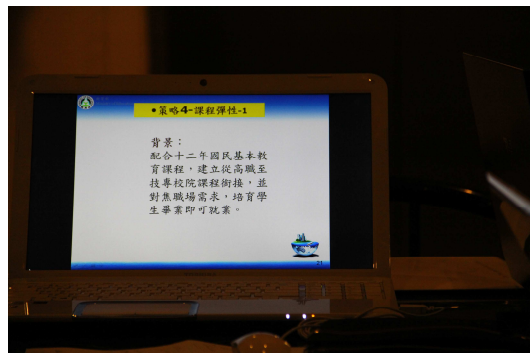
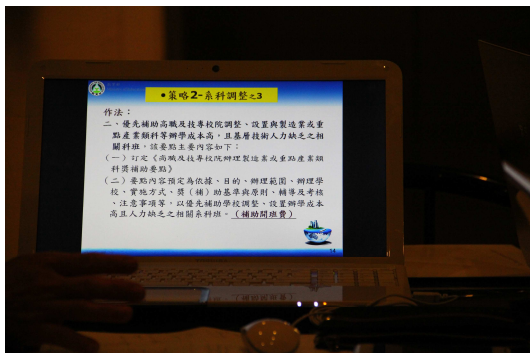
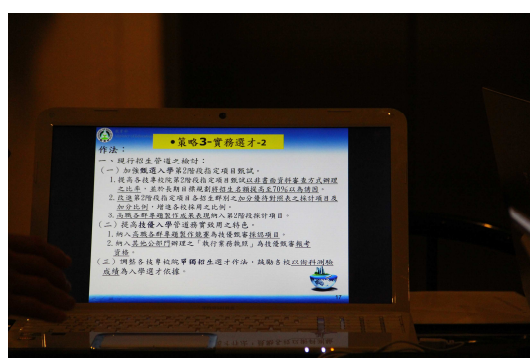
**Aggressively commercialize technology**

**Meet Houston regional needs**

UNIVERSITY of HOUSTON RESEARCH

## Meeting Record on March 6, 2013 at Days Inn & Suites, Houston

Dr. Yu-Chen Hsiao, Senior Specialist of MOE called a night meeting at Days Inn & Suites on March 6, 2013. What was learned from 2013 AUTM and the visiting of various universities was discussed. Besides, Dr. Hsiao shared the principles and the proposals about the Phase II of the project.





## Impression of the city of San Antonio, Texas

San Antonio is the seventh most populous city in the USA with a population of 1.3 million, and located in the southwestern corner of the so called “Texas Triangle”, which is anchored by the metropolitan areas of Houston, San Antonio, Dallas-Fort Worth, and Austin. Attractions of the city of San Antonio include the Alamo (located in Downtown, famous for the Battle of the Alamo, February 23 – March 6, 1836, in the Texas Revolution), the River Walk that meanders through the Downtown area, and the Tower of the Americas built as the theme structure of the 1968 World's Fair (HemisFair).



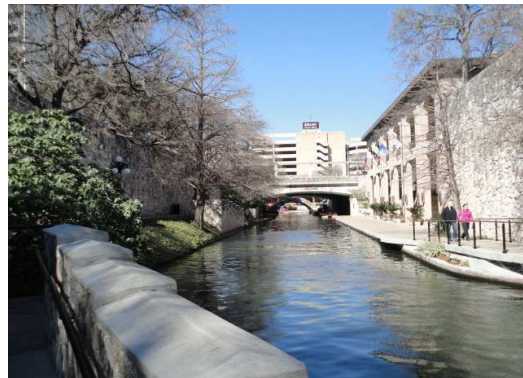
The Alamo



Battle of the Alamo, 1836



River Walk



View from Tower of the American





