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นายวิทยา อมรกิจบำรุง

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LIQUID PHASE EPITAXY OF SEMICONDUCTING TIN  
ON INDIUM ANTIMONIDE

Mr. Vittaya Amornkitbamrung

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By                            Mr. Vittaya Amornkitbamrung

Department            Physics

Thesis Advisors        Prof.    Virulh Sa-yakanit, F.D.  
                                 Assistant Prof. Somphong Chatraphorn  
                                 Wirojana Tantraporn, Ph.D.

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Accepted by the Graduate School, Chulalongkorn University in  
Partial Fulfillment of the Requirement for the Doctor's Degree.

*Thavorn Vajarabhaya*.....Dean of Graduate School  
(Professor Thavorn Vajarabhaya, Ph.D.)

Thesis Committee

*Sippanondha Ketudat*  
.....Chairman  
(Professor Sippanondha Ketudat, Ph.D.)

*Wirojana Tantraporn*  
.....Thesis Advisor  
(Wirojana Tantraporn, Ph.D.)

*Virulh Sa-yakanit*  
.....Thesis Advisor  
(Professor Virulh Sa-yakanit, F.D.)

*Wijit Senghaphan*.....Member  
(Assoc. Prof. Wijit Senghaphan, Ph.D.)

*Phathana Phavanantha*  
.....Member  
(Assoc. Prof. Phathana Phavanantha, Ph.D.)

พิมพ์ต้นฉบับบทความวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

วิทยา อมรกิจบำรุง อธิปไตยสภาวะเหลว ของดีบุกกึ่งตัวนำบนอินเดียมแอนติโมนีไดต์  
(LIQUID PHASE EPITAXY OF SEMICONDUCTING TIN ON INDIUM ANTIMONIDE)  
อ.ที่ปรึกษา ศ.ดร.วิรุฬห์ สายคณิต, ผศ.สมพงษ์ ฉัตรภรณ์, ดร.วิโรจน์ ตันตราภรณ์,  
112 หน้า.

ผลึกขนาดเล็กของดีบุกกึ่งตัวนำ สามารถเตรียมได้โดยวิธีอพิแทกซ์สภาวะเหลว จากสารละลายของดีบุกกับปรอทที่อุณหภูมิ  $7.5 - 12.5^{\circ}\text{C}$  บนแผ่นรองรับอินเดียมแอนติโมนีไดต์ (111)B ที่เตรียมได้ผลึกขนาดเล็กนั้น เชื่อว่าเพราะมีชั้นออกไซด์บนแผ่นรองรับอินเดียมแอนติโมนีไดต์ และมีรูขนาดเล็ก ทะลุชั้นออกไซด์ถึงแผ่นรองรับนั้น ได้ตรวจสอบผลึกดีบุกกึ่งตัวนำบนอินเดียมแอนติโมนีไดต์ ด้วยวิธีการสะท้อนกลับของรังสีเอ็กซ์ และวิธีวิเคราะห์สารขนาดเล็กด้วยลำอิเล็กตรอน (EPMA) ผลึกดีบุกกึ่งตัวนำ ที่ได้มีเสถียรภาพถึงอุณหภูมิประมาณ  $60^{\circ}\text{C}$  ซึ่งใกล้เคียงกับผลที่ได้โดยวิธีอพิแทกซ์จากลำโมเลกุล (MBE) จากผลงานผู้อื่น ตรวจสอบลักษณะของผลึกดีบุกกึ่งตัวนำด้วยกล้องจุลทรรศน์ธรรมดาและกล้องจุลทรรศน์อิเล็กตรอน (SEM)



ภาควิชา .....  
สาขาวิชา .....  
ปีการศึกษา ..... ๒๕๓๐

ลายมือชื่อนิสิต .....  
ลายมือชื่ออาจารย์ที่ปรึกษา .....

พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

VITTAYA AMORNKITBAMRUNG : LIQUID PHASE EPITAXY OF SEMICONDUCTING TIN ON INDIUM ANTIMONIDE. THESIS ADVISORS : PROF.VIRULH SA-YAKANIT, F.D.; ASSIST.PROF. SOMPHONG CHATRAPORN, M.Sc.; WIROJANA TANTRAPORN, Ph.D. 112 PP.

Islets of  $\alpha$ -Sn have been epitaxially grown by the Liquid Phase Epitaxy (LPE) technique on (111)B InSb substrate in Sn-Hg melt at 7.5-12.5°C. That epitaxial growths are in islet form is believed to be due to the presence of an oxide layer with pin-holes on InSb substrate. The x-ray back reflection technique and the Electron-Probe Micro Analysis (EPMA) were used to confirm  $\alpha$ -Sn epitaxy on InSb. The  $\alpha$ -Sn phase is stable to approximately 60°C, which is comparable to the results obtained by Molecular Beam Epitaxy (MBE) technique reported by other workers. The optical microscope and Scanning Electron Microscope (SEM) were used to evaluate the crystallization results.



ภาควิชา .....  
สาขาวิชา .....  
ปีการศึกษา .....

ลายมือชื่อนิสิต .....  
ลายมือชื่ออาจารย์ที่ปรึกษา .....



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