

# Quantum Mechanics and the Limits of Knowledge

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**Abstract**(OHFWURVXSQ PLFURWXEH DUUD\ PHPEUDQHV07\$0V

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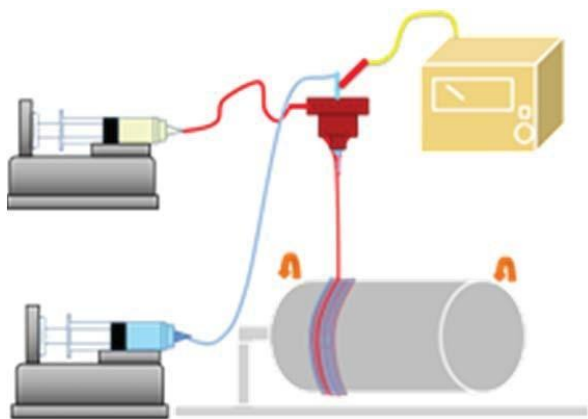
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8QLYHUVLW\ \*UDGXDWH ,QVWLWXWH RI %LRPHGLFDO  
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VXEVHTXHQWO\ WUHDWHG E\ 89JUDIW  
SRO\PHUL]DWLRQ RI \$F WR IDFOLWDWH WKH  
LPPRELOL]DWLRQ RI FKLWRVDQ 7KLV VWXG\  
HPSOR\HG D SODVPD  
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XVHG WR FRPELQH WKH  
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.,(3,5,0(17\$/

*A. Materials*  
DQGDPPRQLXPSHUR[RGLVXOIDWH\$36IURP:DNR&R-  
DSDQ



(LJ)DEULFDWLRQRISRURXV3//\$07\$0VE\FRD[LDO  
HOHFWRVSLQQLQJ

*B. Processes for Immobilizing Chitosan on PLLA MTAMs*

7KH UHDFWLRQ VWHSV IRU WKH  
LPPRELOL]DWLRQ RI FKLWRVDQ RQ  
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VKRZQ  
VFKHPDWLFDQO\LJ

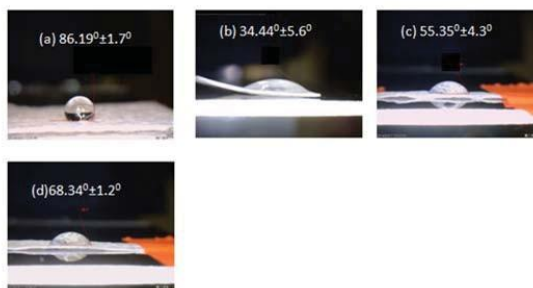
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VROXWLRQ  
FRQWDLQLQJPPRO\$36XQGHUKLJKSUHV\XUHPHUFX  
U\ODPSDW : IRU PLQ 7KH JUDIWLQJ VROXWLRQ RI \$\$F  
ZDV FRPSRVHGE\\$\$FPOZDWHUPO9LWDPLQ%POS36  
J  
)LQDOO\WKH\$\$FJUDIWHG3//\$07\$0VZHUHFURVVOLQN  
HG ZLWK ('&1+6 WR LPPRELOL]H FKLWRVDQ E\ PL[LQJ  
ZW JOXWDUDOGHK\GH DQG ZW FKLWRVDQ ZLWK  
07\$0V DW URRP WHPSHUDWXUH IRU GD\ ('& PJPO 1+6  
PJPO &KLWRVDQ1

,,, 5(68/76\$1",6&866,21

*A. Wettability of PLLA MTAMs*

6XUIDFH ZHWWDELOLW\ RI WKH PRGLLHG  
VXEVDWUDWH FDQ EH  
PHDVXUHGE\WKH:&\$



)LJ:&\$VRI07\$0VDXQWUHDWHGE3'DFHWLFDFLGF6\*UDIW  
\$\$FDQGGFKLWRVDQ,PPRELOL]HG

)LJ VKRZV WKH :&\$ UHVXOWV RI SODVPD  
WUHDWHG JUDIWHG DFU\OLF SRO\PHU DQG  
LPPRELOL]HG FKLWRVDQ 7KH :&\$  
GHFUHDVHG IURP □□□XQWUHDWHG WR □□□\$\$3  
WUHDWHGWKHQURVHWR□□□JUDIWHGZLWK\$\$FSR  
O\PHU DQG HYHQWXDOO\ EHFDPH PRUH  
K\GURSKREL□□□ DIWHU  
FKLWRVDQLPPRELOL]DWLRQ

7\$%/(,  
+<523+2%,&.7<:&\$'(\*5(2)685)\$&(75(\$7('/(&7526381

3//MTAMS S8%675\$7(6

3ODVPD ('&1+6&KLWRVDQ

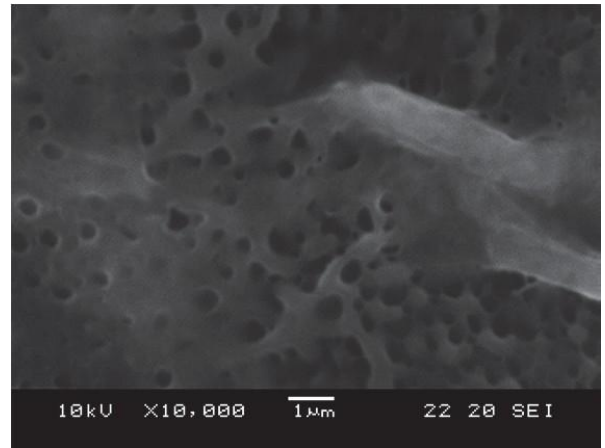
8QWUHDWHG

3\$\$

3\$\$\*\$\$F

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UH  
K\GURSKLOLF DIWHU SODVPD DQG JUDIWLQJ  
WUHDWPHQWV KRZHYHU VKRZHG VOLJKWO\  
K\GURSKRELF WKDQ XQWUHDWHG 3//S 07\$0V DIWHU  
LPPRELOLJDWLRQ RI FKLWRVDQ WKURXJK ('&1+6  
FURVVOLQNLQJDJHQWV

*B. Surface Morphology of Modified MTAMs*  
6XUIDFHPRUSKRORJRI3//S07\$0VE\VFDQQLQJHOHF  
WURQ  
PLFURVFRSH6(0LVVVKRZHGLQ)LJVDQGS\$UHODWLYHO\  
WKLFNOD\HURISRO\SURS\OHQHDFLGDQGFKLWRVDQ  
ZDVREHVHUYHG



E

)LJ6(0RI3//S07\$0VDXQWUHDWHGDQGE3\$\$  
( '&1+6FKLWRVDQ;

)LJ6FDQQLQJHOHFWURQPLFURVFRS\LPDJHV\XUIDFHQGFURVV\HFWLRQRIHOHFWURVSXQ3//S07\$0V

JURZWK RQ FKLWRVDQ LPPRELOLJHG VXUIDFH ZDV  
REHVHUYHG  
LQFUHDVHG6XUIDFHLPPRELOLJHGZLWKFKLWRVDQ  
\$\$3\*\$\$F  
( '&1+6FKLWRVDQSRVVHVHGLPSURYHGELRFRPSDW  
LELOLW\FRPSDULQJ ZLWK WKR VH RI FRQWURO DQG  
RWKHU PRGLLFDWLRQ  
SDUDPHWHUV

,9 &21&/86,216

7KHUHVXOWVIURPZHLJKWFKDQJHVDQGG077DVVD\  
UHYHDOWKDW  
\$\$3WUHDWHGHOFWURVSXQ3//S07\$0VJUDIWHGZLW

K\$\$FDQG ILQDOO\ ZLWK FKLWRVDQ LPPREOLJHG  
YLD FURVVOLQNLQJ DJHQWV  
VKRZHGLPSURYHGK\GURSKLOLFLW\ DQG  
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RI 6FLHQFH DQG 7HFKQRORJ\ RI 7DLZDQ XQGHU

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C.MTT Assay

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5)(5(1&6

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&&&KHQ&+X--X&&KLX&+RQJ0/7VDLQDQ+7 /LQ' \$FFHOUDWHG  
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/ 2X HW DO 30HEUDQHV RI HSLWD[LDOOLNH SDFNHG VXSHU DOLJQHG  
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-&<DQJHWDO3)RUPDWLRQRI+LJKO\SOLJQHG6LQJHGD\HUHG+ROORZ  
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EXUQ LQMXU\

0DWHULDOV&KHPLVWU\DQG3K\VLV9RO\$SULO3S±

+VLQ0LQJ :X <L6\XDQ :HL .R6KDR &KHQ DQG <L-DQJ /LRX 3ODVPD

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SRO\PHULJ\DWLRQ' &ROORLGV DQG 6XUIDFHV %

%LRLQWHUIDFHV±

'U .R6KDR &KHQ LV FXUHQWU\ 3URIHVVURU RI

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