









<X &KXQ\X <XDQ +XLMXDQ :DQJ <DQ HW DO  
&RPSUHKHQVLYH 2SWLPL]DWLRQ 'HVLJQ RI (OHFWURQLF  
7HFKQRORJ\ &RXUVHV >&@ +LJKHU (GXFDWLRQ 6RFLHW\  
RI +HLORQJMLDQJ 3URYLQFH 'HSHQLQJ 7HDFKLQJ  
5HIRUP DQG ,PSURLQJ WKH 4XDOLW\ RI +LJKHU  
(GXFDWLRQ 9RO +HLORQJMLDQJ (GXFDWLRQ 3UHV

/L 4LQJ \*DR =KLZX <DQ &KDQJXR HW DO  
([SORUDWLRQ RI 'LJLWDO (OHFWURQLF 7HFKQRORJ\  
([SHULPHQWDO 7HDFKLQJ 5HIRUP %DVHG RQ WKH  
&RQFHSW RI 1HZ (QJLQHULQJ DQG &XUULFXOX  
,GHRORJLFDO DQG 3ROLWLFDO (GXFDWLRQ >-@ 0RGHUQ  
%XVLQHVV DQG ,QGXVWU\ '2,  
M FQNL

;LDQ &DQJMLDR 6RQJ -XQNDQJ ([SORUDWLRQ DQG  
3UDFWLFH RI 'LJLWDO (OHFWURQLF 7HFKQRORJ\  
([SHULPHQWDO &RXUVH 7HDFKLQJ 5HIRUP >-@ &KLQD  
(TXLSPHQW (QJLQHULQJ

/LDQJ 6 -XQ 6KL / :HL ' HW DO ([SORUDWLRQ DQG  
5HIRUP RI &RQWHQW 'HYHORSPHQW DQG 7HDFKLQJ  
0HWKRGV RI 'LJLWDO (OHFWURQLF  
7HFKQRORJ\ >-@ (GXFDWLRQ 7HDFKLQJ )RUXP

:DQJ /LMXDQ <H +XD 5HVHDFK RQ 7HDFKLQJ  
5HIRUP RI (OHFWULFDO 6SHFLDOL]HG &RXUVHV %DVHG RQ  
2%( 7DNLQJ WKH &RXUVH RI 'LJLWDO (OHFWURQLF  
7HFKQRORJ\ DV DQ ([DPSOH >-@ 6FLHQFH DQG  
7HFKQRORJ\ :LQG '2,  
M FQNL

-LDQMXQ 6 <LUDQ & 1LQJMLQJ & HW DO 5HIRUP RI  
7HDFKLQJ 0RGH RI 6FLHQWLILF 5HVHDFK 0HWKRG IRU  
6DIHW\ (QJLQHULQJ 0DMRU %DVHG RQ 2%(  
&RQFHSW>-@ 6KDQGRQJ &KHPLFDO ,QGXVWU\

=KRX :HL =KDQJ <DQ +XDQJ :HL +\EULG  
7HDFKLQJ 5HIRUP DQG 3UDFWLFH RI 'LJLWDO (OHFWURQLF  
7HFKQRORJ\ &RXUVH >-@ &KLQD 0RGHUQ (GXFDWLRQ  
(TXLSPHQW '2,  
M FQNL FPHH

/LDQJ /L 7KH 'HVLJQ RI 3UDFWLFDO 7HDFKLQJ IRU  
'LJLWDO (OHFWURQLF 7HFKQRORJ\ DQG WKH &XOWLYDWLRQ RI  
&RPSUHKHQVLYH 4XDOLW\ >-@ &KLQD 0RGHUQ  
(GXFDWLRQ (TXLSPHQW '2,  
M FQNL FPHH