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.   Pockels   (MAM)

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Pockels   .

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(.   m   kV

$$V_b = -\int_0^b E_x(x)\,dx \qquad (\ )$$

$$E_x(x)$$

$$x$$

:[ ]

$$V_b = -\int_0^b E_x(x)\,dx \approx -\frac{h}{3}\left[E(0) + 4E(h) + E(b)\right] \qquad (\ )$$

$$h = \frac{b}{2}$$

$$(\qquad)$$

$$V_b = -\int_0^b E_x(x)\,dx \approx -\frac{h}{6}\left[E(0) + 4E(\frac{h}{2}) + 2E(h) + 4E(\frac{3h}{2}) + E(b)\right]$$

$$(\ ) \qquad \text{Pockels}$$

N

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$$V_b \approx \frac{-h}{3n}\left[E(0) + E(b) + 4\sum_{i=1}^{n} E\left(\frac{2i-1}{n}h\right) + 2\sum_{i=1}^{n-1} E\left(\frac{2i}{n}h\right)\right] \qquad (\ )$$
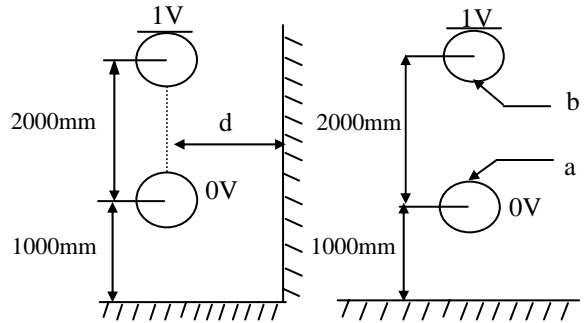
[ ]

$$h = \frac{b}{2} \qquad n = \frac{N-1}{2}$$

$$(\ )$$

b a

$$(\ )$$

$$V_{ba} = -\int_{\Gamma_{ab}} \vec{E}\cdot\vec{d}l \qquad (\ )$$

b a $\qquad \Gamma_{ab}$

x $\qquad \Gamma_{ab}$

$$(\ ) \qquad a$$

kV   （C）

V   .   .

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E_x^{unp} .

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OVT   d   .   C $h = \dfrac{b}{2}$

.   (   )   ( )   N

E_x . E_x :

: E_x^{unp}

$E_x(x) = \rho(x)E_x^{unp}(x)$ ( )

$\rho(x)$ $n = \dfrac{N-1}{2}$ $h = \dfrac{b}{2}$

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$\rho(x)$

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E_x^{unp} (   )   .

(   )   d=400mm E_x

($\rho(x)$)

.   d=400mm

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(   )   .

)   .   OVT   mm
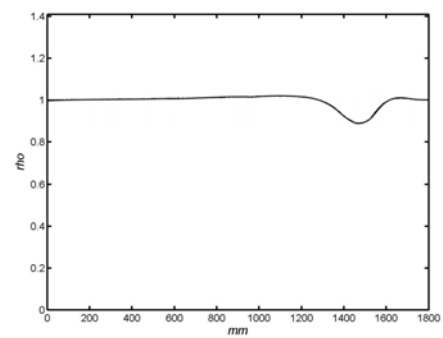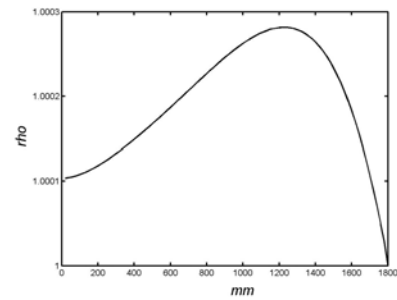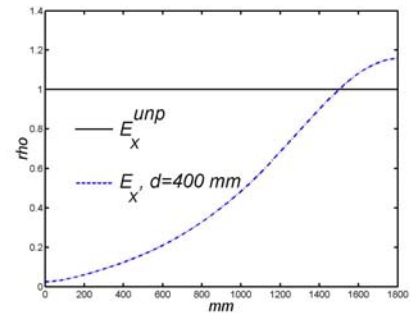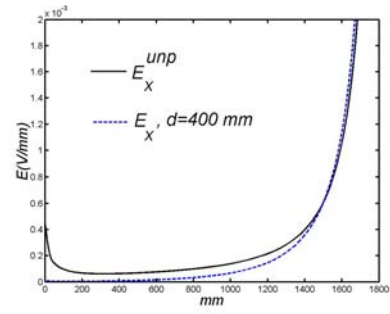
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mm   OVT   mm

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$$V_b = -\int_0^b E_x(x)dx \approx -\frac{2h}{C+2}\big[E(0)+CE(h)+E(b)\big] \quad (\ )$$

$$V_b \approx -\frac{2h}{n(C+2)}\left[E(0)+E(b)+C\sum_{i=1}^{n}E\left(\frac{2i-1}{n}h\right)+2\sum_{i=1}^{n-1}E\left(\frac{2i}{n}h\right)\right] \quad (\ )$$

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d=2000mm   .

d=400mm   d=1000mm

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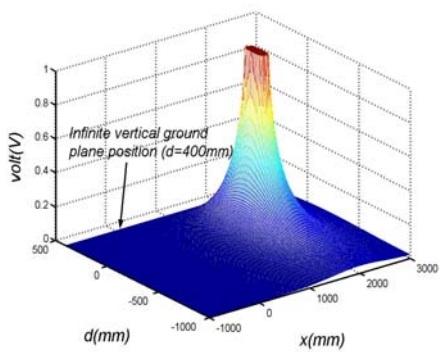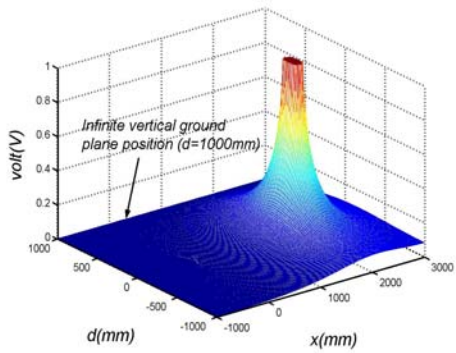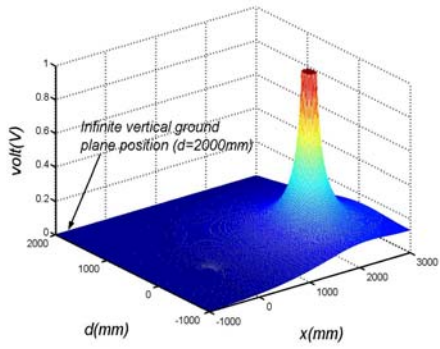
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d=400mm

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d=　mm（ d=　mm（ d=　mm（

X   .

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.   OVT   d

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.**N=5**

N=5	C=17.4161	C=17.556	C=17.6436	C=17.7019
d=400mm	0.0001%	-0.5276%	-0.8542%	-1.0700%
d=600mm	0.5032%	-0.0000%	-0.3115%	-0.5172%
d=800mm	0.6869%	0.1959%	-0.1080%	-0.3087%
d=1000mm	0.7825%	0.2992%	0.0001%	-0.1975%
d=1500mm	0.9075%	0.4352%	0.1428%	-0.0503%
d=2000mm	0.9500%	0.4815%	0.1915%	-0.0000%

:

.**N=41**

N=41	error
d=400mm	1.4433%
d=600mm	1.3820%
d=800mm	1.3506%
d=1000mm	1.3307%
d=1500mm	1.3027%
d=2000mm	1.2930%

:

.**N=3**

N=3	C=13.9335	C=13.9048	C=13.9697	C=14.0765
d=400mm	0.0001%	0.1654%	-0.2076%	-0.8147%
d=600mm	-0.1571%	0.0001%	-0.3546%	-0.9319%
d=800mm	0.1924%	0.3453%	0.0002%	-0.5615%
d=1000mm	0.4228%	0.5731%	0.2341%	-0.3177%
d=1500mm	0.6583%	0.8047%	0.4743%	-0.0637%
d=2000mm	0.7156%	0.8607%	0.5332%	0.0001%

:

.**N=5**

N=5	C=7.4094	C=7.4374	C=7.4481	C=7.4586
d=400mm	-0.0001%	-0.2189%	-0.3022%	-0.3838%
d=600mm	0.2076%	-0.0002%	-0.0793%	-0.1568%
d=800mm	0.2795%	0.0771%	0.0000%	-0.0754%
d=1000mm	0.3072%	0.1082%	0.0324%	-0.0417%
d=1500mm	0.3317%	0.1375%	0.0636%	-0.0088%
d=2000mm	0.3376%	0.1451%	0.0719%	0.0001%

d=2000mm   d=400mm

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. $(x=b \quad x=0)$

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OVT

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N=5   N=3

OVT   d

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.   OVT

"   .   OVT

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( ) ( ) ( )   .

N=5   N=3

.   OVT   d

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.**N=3**

N=3	C=30.0503	C=30.3046	C=30.4441	C=30.6618
d=400mm	0.0000%	0.7211%	1.1119%	1.7150%
d=600mm	0.1393%	0.5488%	0.9216%	1.4971%
d=800mm	0.6710%	0.0001%	-0.3635%	-0.9247%
d=1000mm	1.0179%	0.3578%	0.0001%	-0.5520%
d=1500mm	1.4107%	0.7659%	0.4164%	-0.1229%
d=2000mm	1.5209%	0.8814%	0.5348%	-0.0001%

N=3

N=5

N=3

N=5

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.N=41
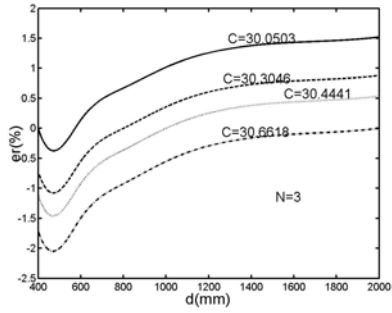
N=41	error
d=400mm	-10.8599%
d=600mm	-10.3966%
d=800mm	-10.1602%
d=1000mm	-10.0101%
d=1500mm	-9.7989%
d=2000mm	-9.7254%
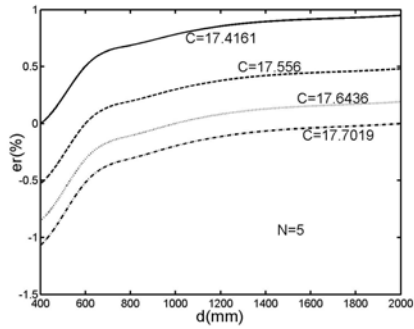
N=41

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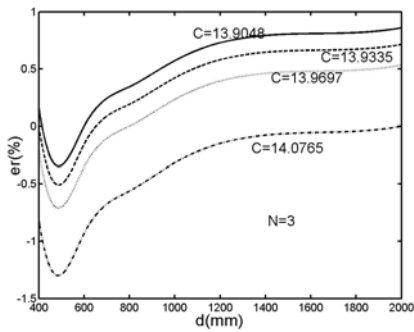
0.0001%　　C=17.4161　　　　　d=400mm　N=5

d=2000mm　N=5

N=3　　　　　　　.　　0.0000%　　C=17.7019

0.0000%　　C=30.0503　　　　　d=400mm

C=30.6618　　d=2000mm

.　0.0001%
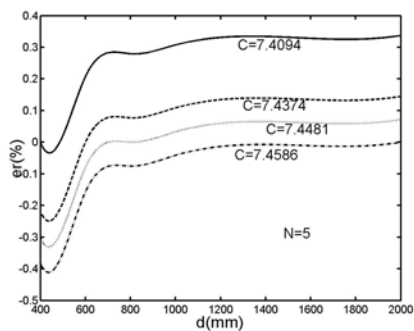
C=7.4094　　　　　d=400mm　N=5

d=2000mm　N=5　　　　0.0001%

N=3　　　　　　.　　0.0001%　　C=7.4586

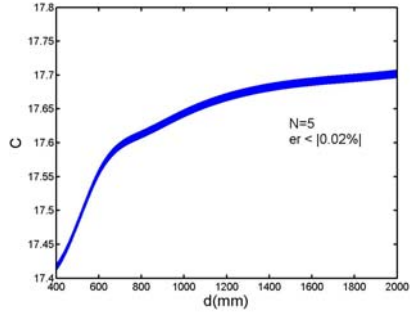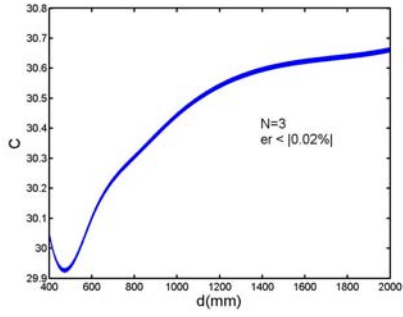0.0001%　　C=13.9335　d=400mm

C=14.0765　　d=2000mm

.　0.0001%

OVT　　　　　　　　　　:

(d)

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(　N=5

(　N=3

.N=5

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C

C

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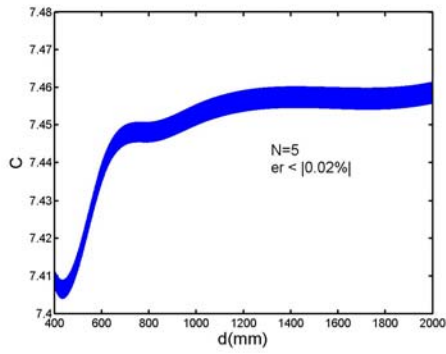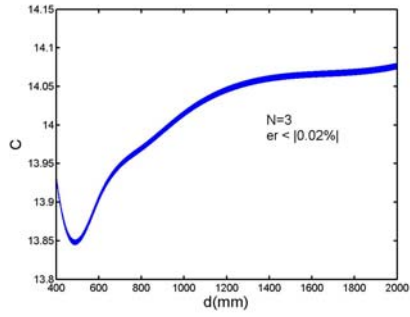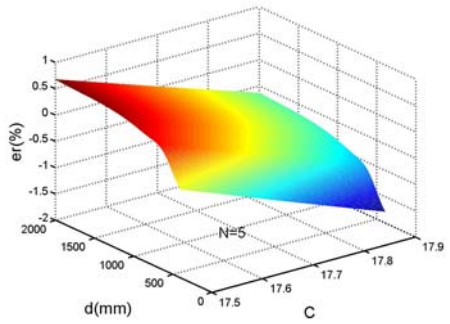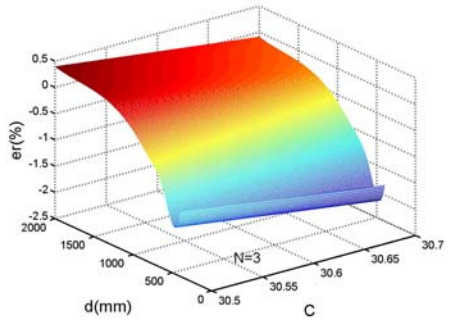
OVT   (C)   :
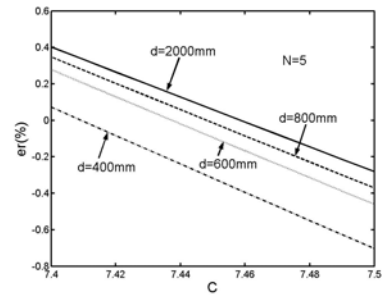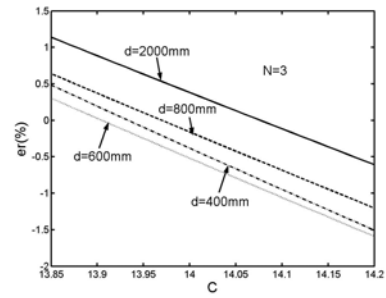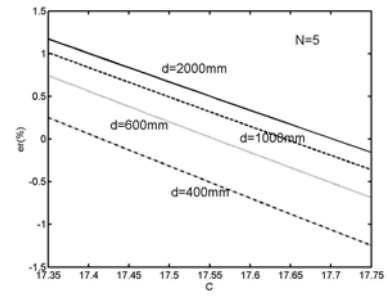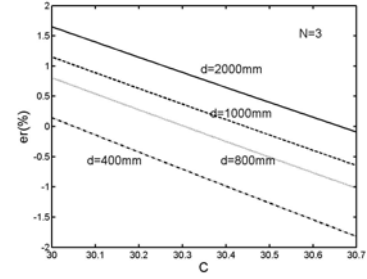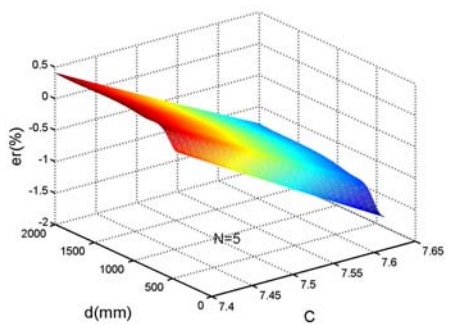   (d)   (C)   :
              (|0.02%| (d)   OVT
              (N=3   (
              (N=5   (N=3
                  (N=3   (N=5
              .N=5   (N=3
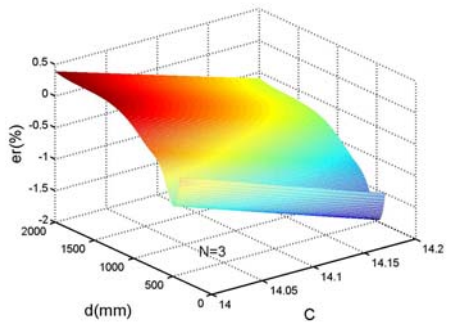   .N=5

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OVT   :

(C)   (d)

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1 - Modified Adaptive Method
2 - Correction Factor
3 - Integrated Optic Pockels Cell (IOPC)
4 - Optical Voltage Transducer