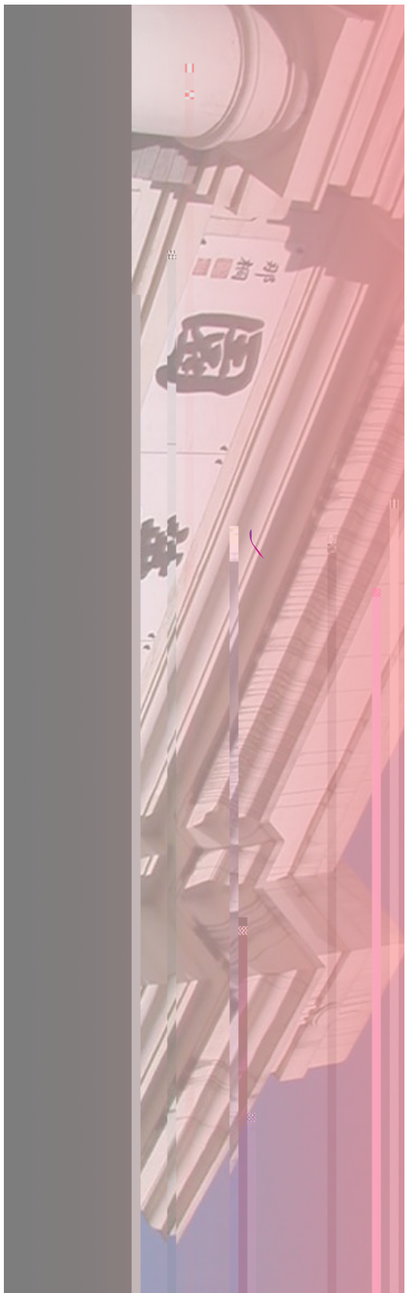


QS 6
6
7
8
9
9
11
3D 11
NSFC“ ” 12
13
2017 13
14

-
15
“ ” 15
10 16
- - 17
- 17
17
“ ” 18

19
19
20
21
22
22
23
24
25

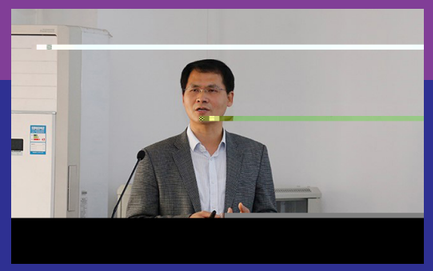
2017 3 QS 46

74 1127 114 400

QS 2011

5 7 9 10

4 7



10

5 2016

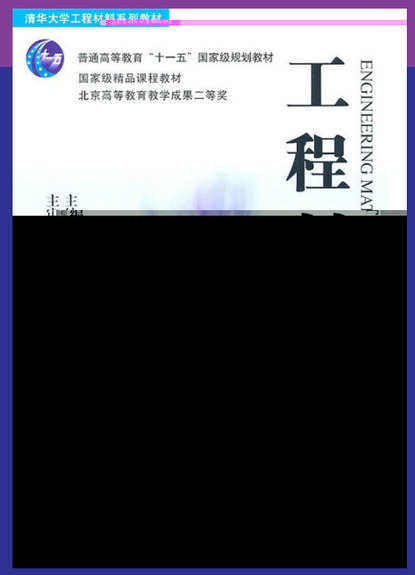
1983

2011

5

150

5 20~21



5

8

120

1 2

3 10

20

5

5

5 11

6

2017

2017 6 29 280 2017

2004

2011

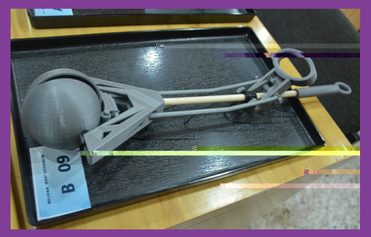
45 6

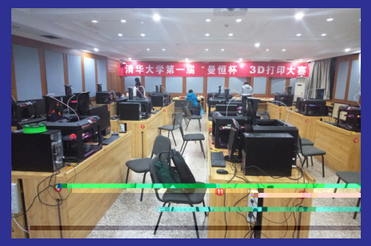
2017 10 16

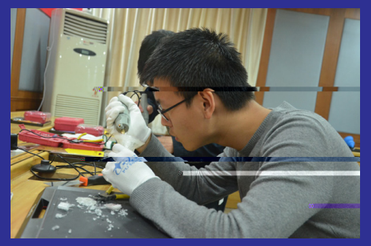
A402

7

10







3D SolidWorks 3DMAX 3D

2017 11 27 2017

1 9 6 2

1983 1986

1991 1994-1995

2004 2007

“ ”

2017 9 28 10 26

LTCC LTCC

metamaterials

10

369 1 41

2016 2005

2010

2017

2017 12

2017

2017

2017 5 18 19 2 -

8 40

50

“ ”

2017 6 26-27 16 (ALEMI)

50

12 28

+

2002 2016

95 16 513 7449

76.9%

ABC 70%

54 A 37 21

A+ 8 A 8 A-

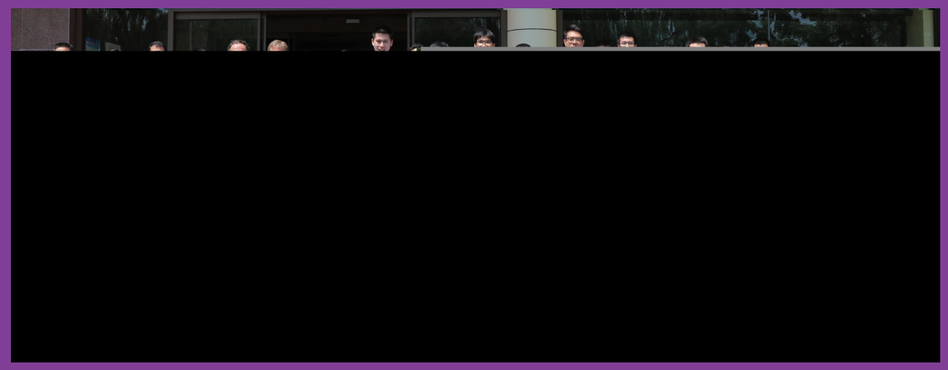
ALEMI

ALEMI

ALEMI 2000 Mats Hillert Hub Aaronson

Yves Brechet

ALEMI

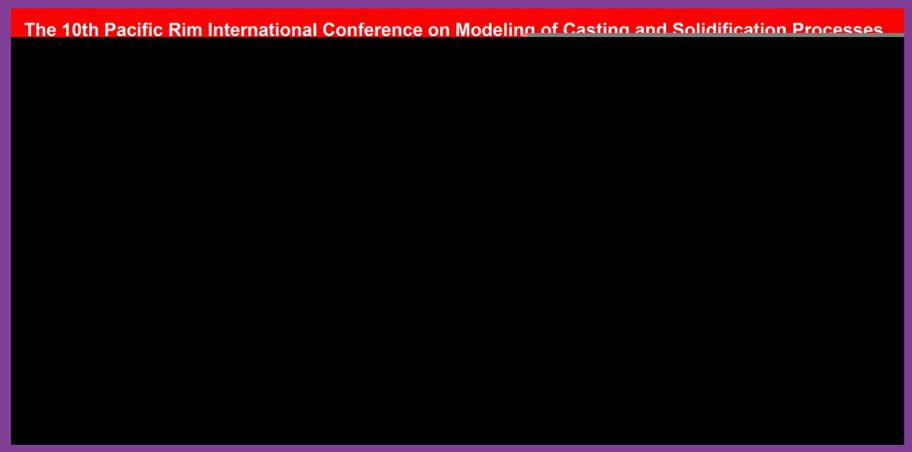


2017 8 21 23 10 MCSP2017-
The 10th Pacific Rim International Conference on Modeling of Casting and Solidification Processes

130 58

Hideyuki Yasuda Kwang Seon Shin Dianzhong Li Alan Luo Menghuai Wu
Hongbiao Dong
MCSP

X-
2~3 MCSP 1996
MCSP



2017 10 17-21 5 10
- -
5 45
10 18 Akira Toriumi Soo
Young Park

NIMS JAXA

2017 10 25 27 -
-
30

9

2017 11 15

CNR-IPCB ISMN-CNR 5
Luigi Ambrosio 21

2017 12 15 17

50

19

/

VO2 VO2

100 Hz 100

VO2

Flexible, All-Inorganic Actuators Based on Vanadium Dioxide and Carbon Nanotube Bimorphs Nano Letters Nano Lett. 2017, 17, 421

/

AIP Applied Physics Reviews Appl. Phys. Rev. 2017, 4, 011301, IF=14.3

PZT

KNN

KNN KNN

MnO2 470 pm/V d33* PZT

100 oC 430 pm/V

Journal of the American Chemical Society, DOI: 10.1021/jacs.7b00520 2016

KNN

PFM KNN

Energy & Environmental Science

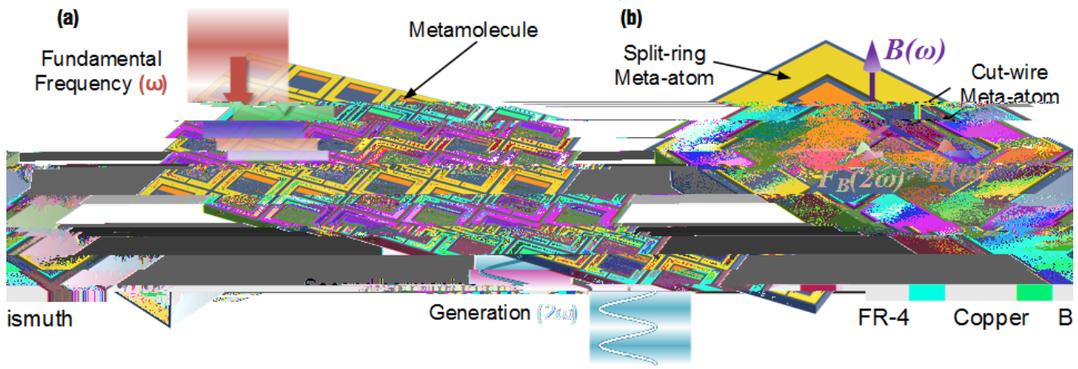
KNN Energy Environ. Sci., DOI: 10.1039/c6ee03597c

2017 4 17

Physical Review Letters Artifcial

Nonlinearity Generated from Electromagnetic Coupling Meta-molecule

metamolecule



1 a b

Physical Review Letters

EMCD

2006

EMCD Electron Magnetic Chiral Dichroism

EMCD

EMCD EMCD

EMCD

EMCD EMCD

EMCD

EMCD

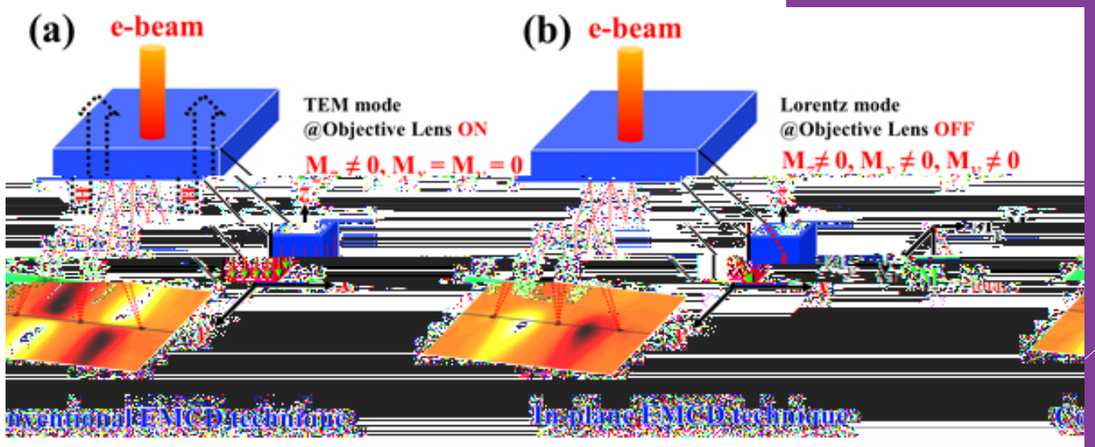
EMCD

EMCD

Co

Lorentz EMCD

EMCD Nature Communications DOI: 10.1038/ncomms15348



Rafal Dunin-

Borkowski Amir Tavabi Andras Kovacs Jan Ta AgNbO3

Rusz Gunther Richter 4.2 J/cm3 AgNbO3 260% 20-120

973 5%

973

YMnO3

Yimei Zhu 2017 6 30 ACS Nano (IF 13.942)

A General Strategy Towards Dual-Scale Controlled Metallic Micro-Nano Hybrid Structures with Ultralow Refectance (http://dx.doi.org/10.1021/acsnano.7b03673)

-

Cu Ti W

1.4% 0.29% 2.5%

Phys. Rev. Lett PRL

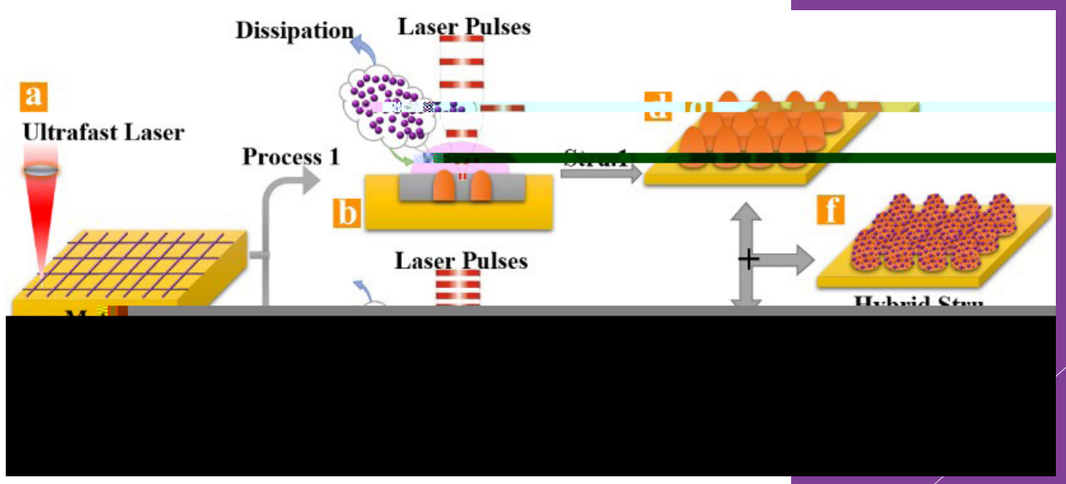
Yimei Zhu

973

2017 6 19 (Advanced Materials) (Lead-Free Antiferroelectric Silver Niobate Tantalate with High Energy Storage Performance)

(Pb(Zr,Ti)O3)

AgNbO3



2017 4 30 2017

1982

200

1982

2008 2012

2017 6 3

30 5

5

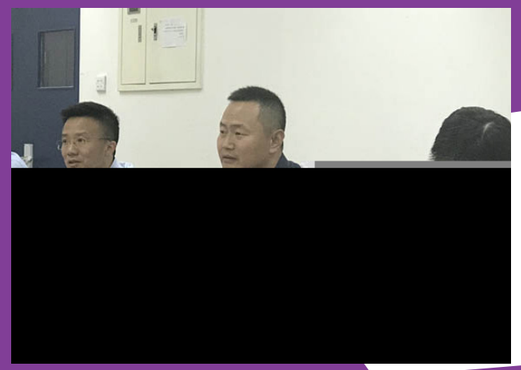
30

IT

20

80

2017 6 4 1991 7



2017 7 27

10

2017 9 2

2017

2017 6

CEO

coco space

CEO

2017 11 4

5

20

2017 11 27 1991

Adamas Equipment

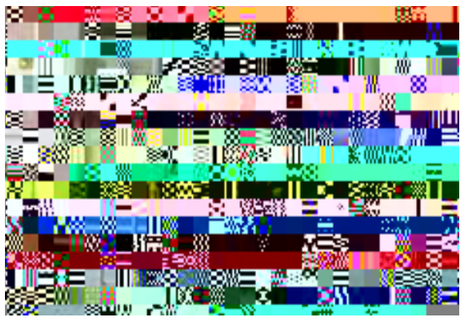
CVD

30 8

96% 90%

60

1991 - 10



1991

1991

9 1989

10

10

10

10

10

5 6 7 8

7 10 10

10

1996

30

1996 9

10

1996-1997

10

415

1995 10 11 12

10 23

23

10

10 10

10

1999 -2000

BBS

d d QQ

2000 -2001

30#401 30#bbs

00 5

2001 -2002

2002 -2003

30#bbs 2308

10

2003 -2004

23#217 23 30#

2004 -2005

BBS BBS 421

4 d d 6 : 3

2005 -2006

W

1998

18 28 98

2008

SCI

12

12

BBS

ACS Nano SCI

14

2013

pal 18

ID

BBS BBS

2000

telnet

2000 BBS

ID BBS BGM

BBS

BBS

XD

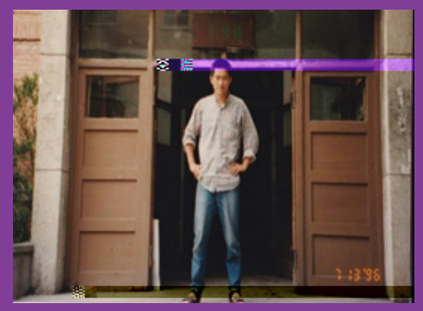
BBS

BBS

BBS

(

)



1991 CEO

( ) 9

9

(

)

12 2

( )

(

F4)

2.5

.

+ +

BSB ( ) BSB

BSB

Merry Christmas ! BSB

BSB

( )

n

( )

2 ( )

+ X

5

6

(@) 6 6 .

PANDA