

**DEPARTMENT OF PHYSICS  
UNIVERSITY OF NORTH BENGAL**

P.O. North Bengal University, Siliguri, Dist. Darjeeling, West Bengal, Pin - 734013, India

Website: [www.nbu.ac.in](http://www.nbu.ac.in)



Phone: +91-(0) 353-2776338, Fax: +91-(0) 353-2699001

ENLIGHTENMENT TO PERFECTION

**CERTIFICATE**

I certify that Mr. Susanta Chakraborty has prepared the thesis entitled "*Phase Transitions in Binary Mixtures of Calamitic and Bent-Core Mesogens*", for the award of Ph.D. degree of the University of North Bengal, under my guidance. He has carried out the work at the Department of Physics, University of North Bengal.

*M. K. Das*

(Dr. Malay Kumar Das)

Professor,  
Department of Physics,  
University of North Bengal,  
Raja Rammohunpur, Siliguri  
Darjeeling-734013  
West Bengal, India

Date: *30.01.2019*

## Urkund Analysis Result

Analysed Document: Susanta Chakraborty\_Physics.pdf (D46897703)  
Submitted: 1/17/2019 10:47:00 AM  
Submitted By: nbuplg@gmail.com  
Significance: 1 %

### Sources included in the report:

<http://samo.kralj.fnm.uni-mb.si/clanki/a7c1.pdf>  
<https://www.mdpi.com/1422-0067/10/9/3971/htm>  
[https://prism.ucalgary.ca/bitstream/handle/11023/189/ucalgary\\_2012\\_Ward\\_Sandra.pdf?sequence=2](https://prism.ucalgary.ca/bitstream/handle/11023/189/ucalgary_2012_Ward_Sandra.pdf?sequence=2)  
<https://core.ac.uk/download/pdf/16175728.pdf>  
<https://pdfs.semanticscholar.org/7a29/dca14457607c609d16d24fd80f15d1d4870c.pdf>  
[http://eprints.utar.edu.my/1868/1/Final\\_thesis\\_\(Draft\\_9\)\\_Foo\\_Kok\\_Leei.pdf](http://eprints.utar.edu.my/1868/1/Final_thesis_(Draft_9)_Foo_Kok_Leei.pdf)  
[http://www.ijarset.com/upload/2017/march/12\\_IJARSET\\_PURNACHANDRA.pdf](http://www.ijarset.com/upload/2017/march/12_IJARSET_PURNACHANDRA.pdf)  
[http://softmat.upatras.gr/wp-content/uploads/2011/05/11-TiltInv\\_PRE2002.pdf](http://softmat.upatras.gr/wp-content/uploads/2011/05/11-TiltInv_PRE2002.pdf)  
<https://hal.archives-ouvertes.fr/hal-00467925/document>  
[https://tel.archives-ouvertes.fr/tel-01543637/file/these\\_archivage\\_3573094o.pdf](https://tel.archives-ouvertes.fr/tel-01543637/file/these_archivage_3573094o.pdf)

### Instances where selected sources appear:

35

M. K. Das

31.01.2019

Susanta Chakraborty .  
31.01.2019