



NSN'2009

Fifth International Conference
**NAVY AND SHIPBUILDING
NOWADAYS**

Conference theme

***NEW METHODS AND MEANS
OF THE ELECTROMAGNETIC AND ACOUSTIC
PROTECTION FOR THE SURFACE SHIPS
AND SUBMARINES***

***June 25 – 26, 2009
St. Petersburg, Russia***



Krylov Shipbuilding Research Institute



***The Fifth International Conference
“Navy and Shipbuilding Nowadays” NSN’2009***

ORGANIZERS



Krylov Shipbuilding Research Institute, Russia



First Naval Research Institute of RF MOD, Russia

THE CONFERENCE GOLDEN SPONSOR -
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V.M.PASHIN, Full Member of the Russian Academy of Sciences, Science Principal & Director of the Krylov Shipbuilding Research Institute, Russia

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V.L.MASLOV, Professor, D.Sc., Deputy Director, Krylov Shipbuilding Research Institute, Russia

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A.N.VAUCHSKIY, D.Sc., Senior Research Scientist, First Central Research Institute of Naval Shipbuilding, MOD, Russia

A.M.VISHNEVSKIY, Professor, D.Sc., Krylov Shipbuilding Research Institute, Russia

V.Yu.CHIZHOV, Cand. Sc., Krylov Shipbuilding Research Institute, Russia

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V.P.SHCHEGOLIKHIN, D.Sc., First Central Research Institute of Naval Shipbuilding, MOD, Russia

CONTENTS

	page
General Information	8
Conference Program	10
Plenary Session	12
Section A	
<i>New methods and means of the electromagnetic protection for the surface ships and submarines</i>	
Technical Sessions	14
Poster session	17
Section B	
<i>New methods and means of the acoustic protection for the surface ships and submarines</i>	
	19
Information for Authors of Papers	22

GENERAL INFORMATION

<i>Theme of the Conference</i>	New methods and means of the electromagnetic and acoustic protection for the surface ships and submarines
<i>Sections and main topics of the Conference</i>	<u>Section A</u> New methods and means of the electromagnetic protection for the surface ships and submarines <u>Section B</u> New methods and means of the acoustic protection for the surface ships and submarines
<i>Venue</i>	LENEXPO Exhibition Site, 103 Bolshoi pr. V.O., St.Petersburg, Russia
<i>Official language</i>	English
<i>Working languages</i>	Russian and English, simultaneous translation will be provided
<i>Conference Proceedings</i>	The papers included in the Final Conference Program will be published in English on CD
<i>Hotel accommodation</i>	Hotel bookings are made by Nordic Travel in accordance with the advance booking applications of Conference participants
<i>Transportation</i>	Buses will be available to transfer participants from airport (railway station) to hotels on arrival and back for departure as well as for round trips from hotels to the venues of Conference sessions and to the places scheduled on the cultural program and other social events
<i>Weather</i>	The end of June in St.Petersburg is the period of "White Nights". The weather is usually warm and dry. However, rain is possible. In this case an umbrella will be quite helpful

Registration

Registration of the Conference participants will take place at the Conference Secretariat on the LENEXPO Exhibition Site, Exhibition Hall No.6, 1st floor balcony.

**NSN'2007
Secretariat**

Mr. A.P.Pylaev
Mr. A.S.Vasiliev
Mrs. L.S.Kryzhevich
Mr. D.V.Fokin

Krylov Shipbuilding Research Institute,
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196158, Russia
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**Internet
Information**

For more information on NSN'2009 please refer to the English web site
<http://www.krylov.com.ru/eng1/sci/nsn2009.htm>

PROGRAM OF THE CONFERENCE

- June 24, 2009,
Wednesday** Arrival of participants and guests in St.Petersburg.
Accommodation in hotels
- June 25, 2009,
Thursday** Registration of the Conference participants
(*LENEXPO Exhibition Hall No.6, 1st floor balcony*)
- Opening of Conference and Plenary Session
(*Exhibition Hall No.6, Conference Room*)
- Social program for accompanying persons during
Conference hours
- Official reception
(*LENEXPO Exhibition Hall No.6, 1st floor balcony*)
- June 26, 2009,
Friday** A tour of KSRI laboratories (on request).
- Sessions of sections **A** and **B** on the main topics
of the Conference (*LENEXPO Exhibition Hall No.5
in Petrovsky Room, and Hall No.7 in Room No. 7.3*)
- Discussions on scientific and commercial matters
- Social program for accompanying persons during
Conference hours
- Evening performances for Conference participants and
accompanying persons
- June 27, 2009,
Saturday** Departure of participants and guests of the Conference

June 25, 2009, Thursday

Time	Hall No.6 Conference Room	Hall No.6 1st floor balcony	Hall No.6 Outdoor esplanade
10.00-11.00		Registration of Conference participants and guests	
11.00-12.00		Registration continued	Opening of IMDS -2009. Show of aerobatic teams
12.00-12.30		Coffee break	
12.30-12.50	Conference Opening and Welcome Speeches		
12.50-14.20	Plenary Session		
14.20-15.20		Lunch	
15.20-16.50	Plenary Session		
17.00-19.00		Official Reception	

June 26, 2009, Friday

A tour of KSRI laboratories (on request) 9.00–11.00

Time	Hall No.5 Petrovsky Room	Cafeteria in Petrovsky Room lobby	Hall No.7 Room 7.3	Hall No.7
10.00–11.40	Section A		Section B	
11.40–12.00		Coffee break		Coffee break
12.00–13.40	Section A		Section B	
13.40–15.00		Lunch		Lunch
15.00–16.40	Section A		Section B	
16.40–17.00		Coffee break		Coffee break
17.00–18.40	Section A Poster Session			

PLENARY SESSION

June 25, 2009, Thursday

- 10.00–11.00** Registration of Conference participants and guests
(Hall No.6, 1st floor balcony)
- 11.00–12.00** Opening of IMDS -2009. Show of aerobatic teams
(Hall No.6, Outdoor esplanade)
- Registration of Conference participants and guests
continued (Hall No.6, 1st floor balcony)
- 12.00–12.30** Closing of aerobatic show
(Hall No.6, Outdoor esplanade)
- Coffee break
(Hall No.6, 1st floor balcony)
- 12.30** Opening of the Conference and Plenary Session
(Hall No.6, Conference Room)

Co-Chairmen:

Professor **V.M.PASHIN**, Full Member of the Russian Academy of Sciences, Science Principal & Director of the Krylov Shipbuilding Research Institute, Russia

A.V.ARKHIPOV, D.Sc., Captain 1st rank, D.Sc., Head of the First Central Research Institute of Naval Shipbuilding, MOD, Russia

Professor **V.L.MASLOV**, D.Sc., Krylov Shipbuilding Research Institute, Russia

- 12.30–12.50** Welcome speech and Opening of the Conference
- 11.00–12.30** **V.L.Maslov**, Krylov Shipbuilding Research Institute, Russia
CHALLENGERS OF SHIP SIGNATURE REDUCTION
- Dr.V.Bhujanga Rao**, Director NSTL, Visakhapatnam, India
ACOUSTIC AND ELECTROMAGNETIC STEALTH FOR NAVAL PLATFORMS

**You-Sheng Wu, Zhen-Ping Weng, Men-Sa Yu,
Wei-Bo Wang, Lin-Gen Zhang, Hui Xue** "China Ship
Scientific Research Center" (CSIC), Wuxi, China
SOME RESEARCH PROGRESS OF SHIP ACOUSTICS IN CHINA

14.20–15.20 Lunch

Co-Chairmen:

Professor **V.M.PASHIN**, Full Member of the Russian Academy of Sciences, Science Principal & Director of the Krylov Shipbuilding Research Institute, Russia

A.V.ARKHIPOV, D.Sc., Captain 1st rank, D.Sc., Head of the First Central Research Institute of Naval Shipbuilding, MOD, Russia

Professor **V.L.MASLOV**, D.Sc., Krylov Shipbuilding Research Institute, Russia

**15.20–16.50 E.I.Yakysenko, Yu.V.Guryev, Naval Engineering
Institute, St.Petersburg, Russia**

INFORMATION-MEASURING SIDE COMPLEX AS A PERSPECTIVE
PROBLEM SOLUTION OF HIDING AND MARINE OBJECTS
PROTECTION

Sanjeev Chawla, Felix Thomas, PDND (SDG), India
BUILDING A STEALTH PLATFORM-DESIGN AND PRODUCTION
CHALLENGES

**A.M.Vishnevsky, A.Ya.Lapovok, N.L.Sudov,
V.E.Gusakovsky, E.A.Shtager, Krylov Shipbuilding
Research Institute, St.Petersburg, Russia**
SOFTWARE FOR SHIP COMPUTATIONAL ELECTRODYNAMIC
METHODS: STATE-OF-THE-ART

17.00–19.00 Official reception
(LENEXPO Exhibition Hall No.6, 1st floor balcony)

19.00 Departure of participants and guests
of the Conference to hotels

Section A

NEW METHODS AND MEANS OF THE ELECTROMAGNETIC PROTECTION FOR THE SURFACE SHIPS AND SUBMARINES

June 26, 2009, Friday

Hall No.5, Petrovsky Room

10.00 – 11.40

TECHNICAL SESSION

Co-chairmen:

A.M. Vishnevsky, Professor, D.Sc.,
Krylov Shipbuilding Research Institute, Russia

E.S. Gorkunov, D.Sc., Corresponding Member
of the Russian Academy of Sciences, Institute of
Engineering Science, Urals Branch of RAS,
Ekaterinburg, Russia

I.P. Krasnov, *Krylov Shipbuilding Research Institute,
St. Petersburg, Russia*

ON MATTER MAGNETIZATION AND POLARIZATION ENERGY

A.M. Vishnevsky, A. Ya. Lapovok, A.A. Firsova,
Krylov Shipbuilding Research Institute, St. Petersburg, Russia
ESTIMATING LINEAR FUNCTIONALS OF DISTRIBUTIONS OF MAGNETIC
FIELD SOURCES BASING ON SURFACE MAGNETIC FIELD
MEASUREMENTS

Yu.G. Briadov, O.E. Mendelson, M.V. Fomichev,
Krylov Shipbuilding Research Institute, St. Petersburg, Russia
CURRENT CONTROLLER OF SHIP DEGAUSSING SYSTEM

V.A. Malyshevsky, G.J. Kalinin, A.A. Kharkov,
FSUE CRISM "Prometey" St. Petersburg, Russia
NON-MAGNETIC HULL STEEL OF NEW GENERATION USED IN
SHIPBUILDING

E.S. Gorkunov, S.M. Zadvorkin, A.N. Mushnikov, *Institute
of Engineering Science, Urals Branch of RAS, Ekaterinburg,
Russia*

E.I. Yakushenko, *Naval Engineering Institute, St. Petersburg,
Russia*
THE EFFECT OF ELASTIC DEFORMATION ON CRITICAL MAGNETIC
FIELDS DISTRIBUTION FOR STRUCTURAL STEEL

11.40–12.00 Coffee Break

12.00–13.40**TECHNICAL SESSION (CONTINUED)**

Co-chairmen:

A.M. Vishnevsky, Professor, D.Sc.,
Krylov Shipbuilding Research Institute, Russia

E.I. Yakushenko, Captain 1st rank, Professor, D.Sc.,
Naval Engineering Institute, St.Petersburg, Russia

S.V.Kovalev, S.M.Nesterov, I.A.Skorodumov, 2 Central
Research Institute of Defense Ministry of Russian Federation,
Tver, Russia

METHOD OF INVERSE SYNTHESIZING OF THE TWO-DIMENSIONAL
RADAR IMAGE OF TRACKED OBJECT IN REAL CONDITIONS

N.L. Sudov, A.V.Mikhailov, O.Yu.Rogovoi, Krylov
Shipbuilding Research Institute, St. Petersburg, Russia
COMPUTER SIMULATION TOOLS FOR SOLVING THE PROBLEMS
IN SHIP EXTREMELY-LOW FREQUENCY ELECTROMAGNETIC
PROTECTION

**V.P.Kopchenov, A.M. Vishnevsky, A.I. Gorshkov,
E.A.Svyadoshch**, Krylov Shipbuilding Research Institute,
St.Petersburg, Russia
SCIENTIFIC & METHODOLOGICAL BASIS FOR ENSURING THE
ELECTROMAGNETIC COMPATIBILITY OF SHIPS IN THE PROCESS
OF DESIGN, CONSTRUCTION AND MODERNIZATION

**V.P.Kopchenov, A.M. Vishnevsky, A.I. Gorshkov,
E.A.Svyadoshch**, Krylov Shipbuilding Research Institute,
St.Petersburg, Russia
ELECTROMAGNETIC METHODS AND TOOLS FOR DIAGNOSTICS
OF CABLE LINES, ELECTRIC EQUIPMENT AND RADIO-ELECTRONIC
SYSTEMS

**V.P.Kopchenov, A.M. Vishnevsky, A.I. Gorshkov,
F.R.Sagaidakov, E.A.Svyadoshch**, Krylov Shipbuilding
Research Institute, St.Petersburg, Russia
MOBILE ELECTROMAGNETIC COMPATIBILITY TEST SYSTEM FOR
SHIPBUILDING INDUSTRY

13.40–15.00 Lunch

Co-chairmen:

A.M. Vishnevsky, Professor, D.Sc., Krylov Shipbuilding Research Institute, Russia

A.Yu. Andreev, Cand. Sc., Krylov Shipbuilding Research Institute, Russia

V.E. Gusakovsky, N.V. Potitova, E.A. Shtager, E.S. Yakovleva,
Krylov Shipbuilding Research Institute, St. Petersburg, Russia
ELECTROMAGNETIC DESIGN OF STEALTH - SHIPS

A.Yu. Andreev, S.O. Zasukhin, I.A. Shikhov, *Krylov Shipbuilding Research Institute, St. Petersburg, Russia*
2D RESOLUTION RADAR INSTRUMENTAL MARITIME COMPLEX

A.V. Matveentsev, Yu.M. Patrakov, *Krylov Shipbuilding Research Institute, St. Petersburg, Russia*
PRINCIPLE OF SYNTHESIZING RADAR-ABSORBING COATINGS FOR THE SPECIFIED MICROWAVE RADIATION BAND

V.S. Bachurin, V.D. Pyshnyj, A.D. Demenyov,
Concern "Almaz-Antey" Experimental machine-design bureau "Novator", Ekaterinburg, Russia
RCS MEASUREMENT BY A METHOD OF TIME-FREQUENCY TRANSFORMATIONS

S.A. Kirillov, *Krylov Shipbuilding Research Institute, St. Petersburg, Russia*
NUMERICAL MODELING OF "KASKAD" -TYPE ELECTRIC & CORROSION PROTECTION SYSTEM OPERATION

S.O. Zasukhin, A.V. Milaev, *Krylov Shipbuilding Research Institute, St. Petersburg, Russia*
ISAR METHOD FOR MEASUREMENTS OF RADAR IMAGES FOR MARINE OBJECTS AT SONAR SIMULATION RIG

16.40–17.00 Coffee Break

POSTER SESSION

Hall № 5 Petrovsky Room

Chairman:

A.M.Vishnevsky, Professor, D.Sc., Krylov Shipbuilding Research Institute, Russia

17.00–18.40

E.M.Vladimirova, V.G.Ivanov, D.V.Ivanov, A.D.Litvin, N.A.Skopin, Krylov Shipbuilding Research Institute, St. Petersburg, Russia

STUDIES ON THE HYDROPHYSICAL FIELDS OF MARINE STRUCTURES AND OCEAN

Yu.G.Stepanov, Krylov Shipbuilding Research Institute, St.Petersburg, Russia

ON HYDRODYNAMIC MECHANISMS OF THIN-LAYERED STRUCTURE FORMATION IN SEA MEDIUM

A.P.Babichev, U.I.Nazarov, Krylov Shipbuilding Research Institute, St.Petersburg, Russia

LOCAL MAGNETIC FIELD COMPENSATORS BASED ON ELECTROMAGNETS

M.M.Priemsky, A.L.Permyakov, V.A.Bystrov, Krylov Shipbuilding Research Institute, St.Petersburg, Russia

ON MAGNETIZATION OF A CYLINDRICAL SHELL MAGNETIZED BY A CIRCULAR COIL

A.V.Demchenko, Krylov Shipbuilding Research Institute, St.Petersburg, Russia

ESTIMATION OF ERROR IN SPHEROIDAL HARMONIC ANALYSIS FOR DESCRIPTION OF SHIP MAGNETIC FIELD

I.P.Krasnov, Krylov Shipbuilding Research Institute, St.Petersburg, Russia

THE CONCEPT OF ELECTROMAGNETIC FIELD SOURCES AND SOME OF ITS APPLICATIONS

I.P.Krasnov, Krylov Shipbuilding Research Institute, St.Petersburg, Russia

ON ELECTROMAGNETIC FIELD ENERGY AND MOMENTUM

P.A.Epifanov, I.E.Karpova, Krylov Shipbuilding
Research Institute, St.Petersburg, Russia
PREDICTING THERMAL CONDITION OF SHIP STRUCTURES IN
WAY OF EXHAUST GAS PLUME FROM POWER PLANT

V.A.Rozov, "Russian Institute for Power Radiobuilding"
JSC ("Russian Institute for Power Radiobuilding" JSC)
St.Petersburg, Russia
BALLOON ANTENNA FOR VLF RADIO STATIONS

V.V.Egorov, A.N.Mingalev, "Russian Institute for Power
Radiobuilding" JSC, St.Petersburg, Russia
ADAPTIVE HF RADIO COMMUNICATION SYSTEM
DEVELOPMENT

Yu.N.Bannikov, A.V.Komissarov, Krylov Shipbuilding
Research Institute, St.Petersburg, Russia
NAVY, SHIPBUILDING , NANOINDUSTRY

S.V.Kovalev, S.M.Nesterov, I.A.Skorodumov,
2 Central Research Institute of Defense Ministry of
Russian Federation, Tver, Russia
METHOD OF MATHEMATICAL MODELING OF THE REFLECTED
RADAR SIGNAL FROM LOW-FLYING OBJECT

E.S.Gorkunov, S.Yu.Mitropolskaya, Institute of
Engineering Science, Urals Branch of RAS, Ekaterinburg,
Russia
CHANGES IN STRUCTURE AND MAGNETIC PROPERTIES OF
STRUCTURAL AUSTENITIC CR-MN-NI-N STEEL AT TENSION

R.Ya.Nizky, A.Ya.Lapovok, A.Yu.Andreev,
S.O.Zasukhin, Krylov Shipbuilding Research Institute,
St.Petersburg, Russia
ANALYSIS OF REFLECTOR ANTENNA RADIATION WITH STAR3D
HIGH FREQUENCY SOFTWARE

Section B

NEW METHODS AND MEANS OF THE ACOUSTIC PROTECTION FOR THE SURFACE SHIPS AND SUBMARINES

June 26, 2009, Friday

Hall No.7, Room No.7.3

10.00–11.40

TECHNICAL SESSION

Co-chairmen:

V.Yu.Chizhov, Cand. Sc., Krylov Shipbuilding Research Institute, Russia

A.V.Ionov, Professor, D.Sc., Krylov Shipbuilding Research Institute, Russia

V.Yu.Chizhov, *Krylov Shipbuilding Research Institute, St.Petersburg, Russia*

METHODS AND MEANS OF REDUCING SUBMARINE'S PRIMARY AND SECONDARY ACOUSTIC SIGNATURES

S.V.Popkov, *Krylov Shipbuilding Research Institute, St.Petersburg, Russia*

ADVANCED METHODS AND TOOLS FOR REDUCTION OF NOISE AND VIBRATION DUE TO OPERATION OF SHIP MACHINERY AND PIPELINE SYSTEMS

M.E.Badaeva, A.U.Kaverinsky, A.B.Maizel, A.L.Nakorenok, R.V.Slutsky, *Central design bureau for marine engineering "Rubin", St.Petersburg, Russia*

THE PROSPECT OF THE COMPUTATIONAL MODELING METHODS APPLICATION FOR THE PREDICTION AND OPTIMIZATION OF THE SEA OBJECTS ACOUSTIC CHARACTERISTICS

O.G.Antushev, Yu.V.Babenko, *OAO NIPTB "Onega", Severodvinsk, Russia*

POWER EQUIPMENT CONDITION MONITORING AND DIAGNOSTICS FOR RELIABLE AND SAFE OPERATION OF THE NAVY SHIPS

E.G.Berestovitsky, S.A.Obuhovsky, *Open Society "Concern "NPO "AURORA", St.Petersburg, Russia*

V.I.Golovanov, *Krylov Shipbuilding Research Institute, St.Petersburg, Russia*

DECREASE IN NOISE AND VIBRATION OF HYDRAULIC DEVICES OF CONTROL VEHICLES SYSTEMS

11.40–12.00 **Coffee Break**

Co-chairmen:

V.Yu. Chizhov, Cand. Sc., Krylov Shipbuilding
Research Institute, Russia

A.V. Ionov, Professor, D.Sc., Krylov Shipbuilding
Research Institute, Russia

A.V. Ionov, *Krylov Shipbuilding Research Institute,
St. Petersburg, Russia*

THE UNIQUE EXPERIMENTAL COMPLEX OF THE KRYLOV
SHIPBUILDING RESEARCH INSTITUTE FOR INVESTIGATION OF
ACOUSTIC, STRENGTH, DURABILITY AND PRODUCTION ASPECTS OF
ACOUSTIC PROTECTION TOOLS

N.V. Volkova, V.I. Golovanov, *Krylov Shipbuilding Research
Institute, St. Petersburg, Russia*

A.V. Slepov, *OOO "NPF "Ankom", St. Petersburg, Russia*

RESULTS OF EXPERIMENTAL RESEARCHES OF THE BASIC
PERFORMANCES SHIP ROPE SPIRAL SHOCK ABSORBERS

K.I. Valyantinas, Yu.N. Popov, S.A. Shlyapochnikov

Krylov Shipbuilding Research Institute, St. Petersburg, Russia

ON THE VALIDATION OF STRENGTH ASSESSMENT METHOD FOR THE
HYDROACOUSTIC COATING ATTACHMENT

V.A. Golland, O.V. Khinskaya, Ye.A. Artamonova,

P.D. Metelkin, K.O. Sokolov, *JSC "Shipbuilding and
Shiprepair Technology Center", St. Petersburg, Russia*

NEW MATERIALS FOR MOUNTING AND SEALING OF OUTER COATINGS

B.P. Braynin, *"NPO "Hidromash", Moscow, Russia*

M.A. Mironov, *Andreyev Acoustics Institute, Moscow, Russia*

CENTRIFUGAL PUMP AS A SOURCE OF HYDRODYNAMIC NOISE

13.40–15.00 Lunch

15.00 – 16.40

TECHNICAL SESSION (CONTINUED)

Co-Chairmen:

V. Yu. Chizhov, Cand. Sc., Krylov Shipbuilding
Research Institute, Russia

A. V. Ionov, Professor, D.Sc., Krylov Shipbuilding
Research Institute, Russia

A. V. Gladilin, A. A. Dogadov, N. G. Kanev, M. A. Mironov,
Andreyev Acoustics Institute, Moscow, Russia

ACTIVE NOISE REDUCTION IN THE SHIP VENTILATION SYSTEMS

A. V. Smol'yakov, Krylov Shipbuilding Research Institute,
St. Petersburg, Russia

THE THEORY OF A TURBULENT BOUNDARY LAYER ON IT IS
LONGITUDINAL THE STREAMLINE CYLINDER

V. M. Tkachenko, Krylov Shipbuilding Research Institute,
St. Petersburg, Russia

ACOUSTIC FIELD INSIDE THE EXTENDED CYLINDER AT ITS TOWAGE
IN A LIQUID

A. G. Poluektov, S. V. Khvorov, V. V. Kiyanitsa, JSC "Ship
repairing center "Zvyozdochka", Severodvinsk, Russia

TECHNICAL DIAGNOSTIC OF MECHANISMS AND SYSTEMS IN
TECHNOLOGICAL CYCLE OF SHIP REPAIRS AT THE SHIP REPAIRING
ENTERPRISE

16.40–17.00 Coffee Break

INFORMATION FOR AUTHORS OF PAPERS

***Plenary and
technical papers***

The authors of papers presented in oral sessions will be provided with equipment for Power Point presentation.
The illustrations must be prepared on CD.

Poster papers

The authors of poster papers will be provided with vertical white surfaced plastic boards 800×1000 mm in standard fixing sets.
The format and manner of demonstration is to be decided by the author(s).

