

# IRG DOCUMENTS 1994

List of technical and other main documents issued by the IRG Secretariat in 1994.

## Section 1 Biology

IRG/WP 94-10050

A novel defaunation method of the protozoa to investigate cellulose metabolism in *Coptotermes formosanus* Shiraki (*Isoptera: Rhinotermitidae*)

T Yoshimura, K Tsunoda, M Takahashi

IRG/WP 94-10051

Antifungal properties of metabolites produced by *Trichoderma* isolates from sawdust media of edible fungi against wood decay fungi

S Doi, M Mori

IRG/WP 94-10052

Worker aggregation and baiting for management of subterranean termites

P K Sen-Sarma

IRG/WP 94-10053

Microbial decay of an archaeological wood

A P Singh, T Nilsson, G F Daniel

IRG/WP 94-10054

Disodium octaborate tetrahydrate, alone and in conjunction with a selected isolate of *Trichoderma viride*, reduces decay of fresh felled pine independent of the effect of weathering

M W Schoeman, D J Dickinson, J F Webber

IRG/WP 94-10055

Feeding stimulants to enhance bait acceptance by Formosan termites

G Henderson, M L Kirby, J Chen

IRG/WP 94-10056

A light electron microscope study of decayed CCA-treated Radiata pine (*Pinus radiata*) wood from a cooling tower

A P Singh, R N Wakeling, D R Page

IRG/WP 94-10057

Termite physical barriers: current status of retrofitting Granitgard around 'mock-up' buildings

B Ahmed, J R J French

IRG/WP 94-10058

Subterranean termite foraging behaviour and the development of baiting methods used for termite control by the Division of Forest Products

J R J French, J W Creffield, B Ahmed

IRG/WP 94-10059

Observations on the activities of *Sphaeroma* in Australia

L J Cookson

IRG/WP 94-10060

Hemicellulosic induction of oxalic acid in *Postia placenta*

F Green III, M J Larsen, T L Highley

IRG/WP 94-10061

Effect of *Scytalidium lignicola* on decay resistance and strength of wood

T L Highley

IRG/WP 94-10062

Relationship between degradation of wood, cellulose or lignin-related compounds and production of hydroxyl radical or accumulation of oxalic acid in cultures of brown-rot fungi

S Itakura, T Hirano, H Tanaka, A Enoki

IRG/WP 94-10063

Oxalic acid quantification, oxaloacetase assay and ESI localization of P, C and Fe from the brown-rot fungus *Postia placenta*

C R Jordan, W V Dashek, T L Highley

IRG/WP 94-10064

Experiences from a Danish large scale test by means of a new method of treatment by attack of true dry rot fungus (*Serpula lacrymans*) in buildings

O Munck, H Sundberg

IRG/WP 94-10065

Effect of cyclic change of temperature on fungal growth and mass loss

K Suzuki, K Okada

IRG/WP 94-10066

Physiologic response of *Phanerochaete chrysosporium* to exposure to triazole fungicides

J J Morrell, R K Velicheti

IRG/WP 94-10067

Solid state NMR study on pine wood degraded by brown rot fungus *Gloeophyllum trabeum*

Y S Kim, R Newman

IRG/WP 94-10068

Application of DNA-fingerprinting methods to identify biocontrol strains of fungi imperfecti

A Schlick, K Kuhls, W Meyer, E Lieckfeld, T Börner, K Messner

IRG/WP 94-10069

Biological control of *Serpula lacrymans* using *Trichoderma* spp.

A J Score, J W Palfreyman

IRG/WP 94-10070

Siderophore production by *Trichoderma* spp. and its importance in the biological control of wood decay fungi

U Srinivasan, A Bruce, T L Highley

IRG/WP 94-10071

The present classification of wood degradation factors, revised version

J Wazny

IRG/WP 94-10072

Fungal colonisation of the keelson and associated structures of a nineteenth century wooden frigate; concepts of community structure and development

N A White, J W Palfreyman, G M Smith

IRG/WP 94-10073

Biological control with *Trichoderma harzianum* in relation to the formation of spores and the production of soluble metabolites

J Bürgel, E M Horvath, J Haschka, K Messner

IRG/WP 94-10074

Regulation of hyphal sheath formation and iron-chelator production by the brown-rot fungi *Gloeophyllum trabeum* and *Postia placenta*

Y Chen, J Jellison

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Oxalate production and calcium oxalate accumulation by *Gloeophyllum trabeum* in buffered cultures

J H Connolly, J Jellison

IRG/WP 94-10076

Oviposition orientation of the longicorn beetle, *Hylotrupes bajulus*

B Hinze, H Hertel

IRG/WP 94-10077

Evidence for wood cell wall degradation by the blue stain fungus *Botrydiplodia theobromae* Pat.

O Encinas, G Daniel

IRG/WP 94-10078

Copper-resistant fungi on pressure impregnated wood in Denmark

J Bech-Andersen, S A Elborne

IRG/WP 94-10079

Preservation of two Indonesian timber species for marine environment purposes

P Permadi, I M Padlinurjaji, F Rasmita

IRG/WP 94-10080

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IRG/WP 94-10081

Basidiosporogenesis by white-rot basidiomycetes *in vitro*

S C Croan

IRG/WP 94-10082

An investigation of the nutritional physiology of the wood-boring weevil *Euophryum confine* Broun

A J Pitman, S M Cragg, G Sawyer

IRG/WP 94-10083

The dry rot fungus and other fungi in houses, Part 3

Jørgen Bech-Andersen

IRG/WP 94-10084

Biodeterioration and preservation of Rubberwood (*Hevea brasiliensis*)

L T Hong, A H H Wong

IRG/WP 94-10085

New perspectives on the biology of the tropical powderpost beetle, *Minthea rugicollis* (Walk)

F Abood, R Murphy, R Berry

IRG/WP 94-10086

The role of oxygen radicals in the one-electron oxidative reactions mediated by low-molecular weight chelators from *Gloeophyllum trabeum*

J Lu, B Goodell, J Liu, A Enoki, J Jellison, H Tanaka, F Fekete

IRG/WP 94-10087

Effect of Microfibril orientation of Bamboo cell wall on soft rot penetration hyphae

O Sulaiman, R Murphy

IRG/WP 94-10088

Control of the Formosan Subterranean termite in China

Zhong Junhong, Liu Liling

IRG/WP 94-10089

IRG Marine Wood Preservation Questionnaire

L J Cookson

IRG/WP 94-10090

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## **Section 2 Test Methodology and Assessment**

IRG/WP 94-20018

The critical timing of inspections for field testing of natural durability

J D Thornton

IRG/WP 94-20019

Work program of CEN/TC38 (January 1994)

Durability of wood and derived materials

R Hüb

IRG/WP 94-20020

Austrian field test method for anti-sapstain products

R Gründlinger, M Brandstätter, H Melzer, O Janotta

IRG/WP-94-20021

Performance criteria for approving new wood preservatives for ground contact

M E Hedley

IRG/WP 94-20022

Aggregation and collection of large numbers of *Mastotermes darwiniensis* Froggatt for laboratory work

L R Miller

IRG/WP 94-20023

A comparison of analytical and visual techniques used for assessment of weathering properties of chromium and copper azole treated timber

J A Cornfield, M Hale, G Fettis

IRG/WP 94-20024

Soil block versus field test for evaluating and standardizing wood preservatives: A commercial view

W S McNamara

IRG/WP 94-20025

Insect transmission of fungal sapstain to freshly sawn unseasoned softwood lumber

M A Powell, R A Eaton, J F Webber

IRG/WP 94-20026

Susceptibility of heartwood of three *Pinus* species to attack by the subterranean termite *Coptotermes acinaciformis* (Froggatt)

M J Kennedy, L L Dixon, B C Peters

IRG/WP 94-20027

Chemical analysis for TBTN in LOSP-treated wood and preservative fluids

D P Wraight, M J Kennedy

IRG/WP 94-20028

Safer alternative reagents for colour differentiation of heartwood and sapwood

A Zosars, M J Kennedy

IRG/WP 94-20029

A determination of the toxic level of ACQ 2100 wood preservative for the powder post borer *Lyctus brunneus* (Stephens)

A R Moffat

IRG/WP 94-20030

Penetration of surface applied deltamethrin micro-emulsion formulations in four European timber species

P M Esser, W L D Suitela, A J Pendlebury

IRG/WP 94-20031

A proposal for an international wood preservation standard

P I Morris

IRG/WP 94-20032

International collaborative study comparison of two wood preservatives against subterranean termites:

Update

J R J French

IRG/WP 94-20033

The Rubber ruler: Continous measurement of dimension changes in wood panels

S K Ho, P Vinden, P Kho

IRG/WP 94-20034

Accelerated anti-termite laboratory tests, simulation of field conditions and assessment of results for service life

P K Sen-Sarma

IRG/WP 94-20035

A field method for determining the above-ground resistance of wood and wood products to attack by subterranean termites

J W Creffield

IRG/WP 94-20036

The reliability of colouring methods for the determination of bifluorides and boron in spruce wood

R Grell, M G Sanders, W J Homan, H Militz

IRG/WP 94-20037

Susceptibility of softwood bait stakes to attack by subterranean termites (*Isoptera: Rhinotermitidae*)

B C Peters, R T Murray, C J Fitzgerald

IRG/WP 94-20038

An evaluation of the potential of ion mobility spectrometry for detection of organic wood preservative components in solutions and treated wood

A Voss, J N R Ruddick, W J Homan, H Militz, H Willeitner

IRG/WP 94-20039

Comparison of the agar-block method and soil-block methods used for evaluation of fungitoxic value of QAC and CCA wood preservatives

J Wazny, L J Cookson

IRG/WP 94-20040

Assessing the performance of wood preservatives from biological tests - the European approach

A F Bravery

IRG/WP 94-20041

Determination of boron levels in solution and in treated wood

F J Romero, P Vinden, P Kho

IRG/WP 94-20042

Nondestructive assessment of biodegradation in Southern pine sapwood exposed to attack by natural populations of decay fungi and subterranean termites

R C De Groot, R J Ross, W Nelson

IRG/WP 94-20043

Development of an Australasian protocol for assessment of wood preservatives

W D Gardner, H Greaves, M E Hedley, K J McCarthy, J Norton

IRG/WP 94-20044

New conception for shortening the duration of fungitoxic test on wood preservatives. Part 1 State-of-the-art

J Wazny, P Witomski

IRG/WP 94-20045

Test methods used for approval of wood preservatives in Indonesia

A Martawijaya

IRG/WP 94-20046

Protocols for assessment and approval of wood preservatives in the Nordic countries

J Jermer, B Henningsson

IRG/WP 94-20047

Observations on the performance of copper-based wood preservatives in fungal cellar (soil-bed) tests

G R Williams, D Rudolph, M E Hedley, J A Drysdale, R Fox

IRG/WP 94-20048

Categories in wood preservation considering hazard, risk and use

H Willeitner

IRG/WP 94-20049

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IRG/WP 94-20050

An investigation into the influence of soil cation exchange capacity on preservative component depletion

K Archer, L Jin

IRG/WP 94-20051

The biological natural durability of timber in ground contact

G A Smith, R J Orsler

IRG/WP 94-20052

New conception for shortening the duration of fungitoxic test on wood preservatives. Part 2 computer-assisted miniaturisation of wood specimens

J Wazny, K J Krajewski

IRG/WP 94-20053

New conception for shortening the duration of fungitoxic test on wood preservatives. Part 3. Proposal for interlaboratory test on miniaturisation of wood specimens

J Wazny, K J Krajewski

IRG/WP 94-20054

Study of modulus of rupture, circumference taper, sapwood thickness and CCA treatment of Norwegian origin *Pinus sylvestris* poles

A K Lahiry, S Begum, G N M Ilias, M A B Fakir, R U Hafiz

IRG/WP 94-20055

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### **Section 3 Wood protecting chemicals**

IRG/WP 94-30033

Fire resistance of preservative treated fence posts

P D Evans, P Beutel, C F Donnelly, R B Cunningham

IRG/WP 94-30034

Laboratory evaluation of six commercial termiticides against subterranean termite, *Coptotermes gestroi* Wasmann

Y Sornnuwat, C Vongkaluang, T Yoshimura, K Tsunoda, M Takahashi

IRG/WP 94-30035

Evaluation of a new anti-sapstain formulation

K Tsunoda, H Kumagai, M Sakurai

IRG/WP 94-30036

Resistance of twenty-five species of timbers to marine borer attack at Visakhapatnam, East coast of India

K Satyanarayana Rao, M Balaji, V V Srinivasan

IRG/WP 94-30037

Boron treatments for the preservation of wood - A review of efficacy data for fungi and termites

J A Drysdale

IRG/WP 94-30038

Conservation of wooden cultural property

A Unger, W Unger

IRG/WP 94-30039

The effect of extent and location of decay on strength loss in constructional timber

M E Hedley, H Bier

IRG/WP 94-30040

The influence of copper (II) chemicals on the weathering of treated wood, Part I. ACQ treatment of wood on weathering

R Liu, J N R Ruddick, L Jin

IRG/WP 94-30041

The performance of chlorothalonil after 4.5 years in the accelerated field simulator  
L J Cookson

IRG/WP 94-30042

Borate diffusion from fused borate rods in Douglas-fir transmission poles  
T L Highley, W Finney, F Green III

IRG/WP 94-30043

Efficacy of termiticide treatments to soil in field tests in the Southern United States  
B M Kard, J K Mauldin

IRG/WP 94-30044

Utilization of Coconut timber from North Sulawesi, Indonesia. Part 1: Durability  
R-D Peek

IRG/WP 94-30045

A wood preservative for the future: copper dimethyldithiocarbamate  
D K Stokes, M H Freeman, T L Woods, R D Arsenault

IRG/WP 94-30046

Susceptibility of antisapstain fungicides to rain wash-off  
R N Wakeling, D J Cross, D R Eden, R Maynard

IRG/WP 94-30047

Chloropyrifos as a wood treatment termiticide  
R D Fears

IRG/WP 94-30048

Toxicity of Etofenprox to the Formosan subterranean termite, *Coptotermes formosanus*  
M Tamashiro, J K Grace, R T Yamamoto

IRG/WP 94-30049

Evaluating the potential of amine chemicals for use as wood protecting agents. Part 1. Investigation of cation component of quaternary ammonium compounds  
H Tang, J N R Ruddick

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Preservative-efficacy of boric acid-triethanol amine solution against wood-decay fungi  
S Doi, M Mori, Y Mineki

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The influence of drilling patterns on the distribution of toxicants from Polesaver rods in hardwood poles  
W D Gardner

IRG/WP 94-30052

Termiticide degradation in Mississippi field tests  
B M Kard

IRG/WP 94-30053

Assessment of the effects of Rentex remedial treatment on some wood pole inhabitant micro-organisms  
D C R Sinclair, G M Smith, A Bruce, H Staines

IRG/WP 94-30054

Wood preservative development: Have we learnt anything, and where might it take us?  
A F Preston



IRG/WP 94-30055

The wood preservative performance of biocide mixtures containing chloropyrifos

P E Laks

IRG/WP 94-30056

Laboratory tests on the residual effects of pyrethroids against termites thirteen years after application

A M F Oliveira

IRG/WP 94-30057

Performance of copper-based wood preservatives in above ground and ground contact tests

A Preston, K J Archer, L Jin, W Metzner, D Seepe

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IRG/WP 94-30059

Effect of thickened boron in preventing conidial germination of sapwood-inhabiting fungi

S C Croan

IRG/WP 94-30060

Properties-enhanced Albizzia particleboards by incorporating fungicide and insecticide in the glue

B Subiyanto, S Yusuf, Y Imamura, S Fushiki, T Saito, Y Katuzawa

#### **Section 4 Processes**

IRG/WP 94-40017

Improving the weather resistance of glue-laminated Jarrah and Karri

J Balfas, P D Evans

IRG/WP 94-40018

Biological resistance of aldehyde-treated wood

S Yusuf, Y Imamura, M Takahashi, K Minato

IRG/WP 94-40019

A review of incising as a means of improving treatment of sawnwood

P I Morris, J J Morrell, J N R Ruddick

IRG/WP 94-40020

Biodegradation of acetylated Southern pine and Aspen composition board

P Chow, T Harp, R Meimban, J A Youngquist, R M Rowell

IRG/WP 94-40021

Resistance of acetylated wood to basidiomycetes, soft rot and blue stain

E P J Beckers, H Miltz, M Stevens

IRG/WP 94-40022

Heat transfer and wood moisture effects in moderate temperature fixation of CCA treated wood

J Chen, M Kaldas, Y T Ung, P A Cooper

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Comparison of methods for monitoring CCA fixation

P A Cooper, Y T Ung, G Zanjani

IRG/WP 94-40024

Biological resistance of electrolessly plated wood. 1. Preliminary report  
M Hasegawa, K Tsunoda, T Yoshimura

IRG/WP 94-40025

Utilization of Coconut timber from North Sulawesi, Indonesia. Part 2: Treatability  
R-D Peek

IRG/WP 94-40026

Discussion paper. Industrial fixation systems: key factors, limitations and optimisation through the use of computer simulation modelling  
A J Pendlebury, M Riepen, M Boonstra, W Gard

IRG/WP 94-40027

Preliminary pole treatment trials with chlorothalonil in hydrocarbon solvent  
H M Barnes

IRG/WP 94-40028

Dimensional stability and decay resistance of wood upon modification with some new type chemical reactants  
P Goethals, M Stevens

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Three-year field trials of polymeric formulations which provide a new basis for the invention and design of non-toxic wide-spectrum wood preservatives  
A A W Baecker, A Pizzi

IRG/WP 94-40030

Study of the degradation of retified wood through ultrasonic and gravimetric techniques  
M T Troya, A Navarrete

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Testing method for the treatability of wood  
A O Rapp, R-D Peek

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The effect of heat treatment on the properties of spruce. A preliminary report  
H Viitanen, S Jämsä, L Paajanen, A Nurmi, P Viitaniemi

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Mould growth at lumber surfaces of pine after kiln and air drying  
N Terziev, J Bjurman, J Boutelje

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Wood protection processes in the Asean countries  
F R Siriban

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IRG/WP 94-40036

Vapour boron treatment of wood based panels: Mechanism for effect upon impact resistance  
R Hashim, R Murphy, D Dickinson, J Dinwoodie

IRG/WP 94-40037

Distribution of fire retardant chemicals in Kempas *Koompassia malaccensis*  
A R A Malek, R J Murphy

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## Section 5 Environmental aspects

IRG/WP 94-50018  
Environmental status of wood preservation in the UK  
M Connell

IRG/WP 94-50019  
Emissions from the combustion of wood treated with organic and inorganic preservatives  
T Salthammer, H Klipp, R-D Peek, R Marutzky

IRG/WP 94-50020  
Leaching of copper, chromium and arsenic from CCA-treated Slash pine heartwood  
M J Kennedy, G Palmer

IRG/WP 94-50021  
Remediation of pentachlorophenol- and creosote-contaminated soils using wood-degrading fungi  
R T Lamar, T K Kirk

IRG/WP 94-50022  
Assessment of residual retentions in creosote treated Scots pine (*Pinus sylvestris*) poles after 45 years ground contact service in the Lemstervaart in the Dutch polder  
P M Esser, W L D Suitela, A J Pendlebury, H Visscher

IRG/WP 94-50023  
The applicability of life cycle analysis and alternative methods in the wood preservation industry  
P M Esser, J Cramer

IRG/WP 94-50024  
Evaluation of rapid methods for detecting wood preservatives in waste wood  
W J Homan, H Militz

IRG/WP 94-50025  
On site test for indicative determination of leaching components of preservatives from treated timber. Part 2. New data on CCA-C, CC and CCB treated timber  
W J Homan

IRG/WP 94-50026  
Leaching from field test stakes II. The distribution in and leaching from different parts of test stakes  
F G Evans, B Nossen, M-L Edlund

IRG/WP 94-50027  
Comparative study on leaching of CCA from treated timber: Modelling of emission data  
G van Eetvelde, M Stevens, L Vander Mijnsbrugge

IRG/WP 94-50028  
Potential use of an emulsified tar oil fraction as a wood preservative: Preliminary technological and environmental assessment  
G van Eetvelde, R Leegwater, M Stevens

IRG/WP 94-50029  
Effect of test methodology on seed germination using filter paper and soil as substrates  
L Jin, A F Preston

IRG/WP 94-50030

Recycling of treated timber by copper smelter  
A J Nurmi, L Lindroos

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Losses of preservatives from treated wood during service. Results from a questionnaire  
M-L Edlund

IRG/WP 94-50032

Quantification of creosote migration down wooden poles and the prevention of its depletion during flood irrigation  
M Behr, A A W Baecker

IRG/WP 94-50033

The use, approval and waste management of industrial wood preservatives. A preliminary report  
A J Nurmi

IRG/WP 94-50034

Life cycle analysis: Assessing environmental impact  
S L LeVan

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Analysis of creosote posts after 40 years of exposure  
G Bergqvist, S Holmroos

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Depletion of wood preservatives after four years' marine exposure in Mt. Maunganui harbour, NZ  
K J Archer, A F Preston

IRG/WP 94-50037

Generic code of good practices for wood preservation facilities  
G Das, V N P Mathur

IRG/WP 94-50038

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**Other documents**

IRG/WP 94-60021

International directory of members and sponsors 1994

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IRG/WP 94-60022

Abstracts of some papers promised for IRG 25

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IRG/WP 94-60023

Nomination procedure for the offices of President, Vice-President and members of the Executive Council of IRG

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Conditions for membership of IRG

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IRG/WP 94-60025

Rules and conditions of the Ron Cockcroft Award scheme (RCA)

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Results of survey conducted at Orlando, to solicit attendee feedback on program design

J N R Ruddick

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Comparison between actual income and expenditure and the budget for 1993

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IRG/WP 94-60030\*

Agenda Finance Committee Meeting

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Abstracts of some papers and posters promised for IRG 25, Part 2

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Budget (revised) for 1994

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Minutes of the Finance Committee Meeting 1994

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Minutes of the Executive Council Meeting 1994

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Minutes of the Scientific Programme Committee Meeting 1994

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**\* restricted circulation**