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राष्ट्रीय पृथ्वी विज्ञान अध्ययन केन्द्र
NATIONAL CENTRE FOR EARTH SCIENCE STUDIES
पृथ्वी विज्ञान मंत्रालय, भारत सरकार



Ministry of Earth Sciences, Government of India

पी.बी.नं. 7250, आक्कुलम, तिरुवनन्तपुरम - 695011, भारत

PB No. 7250, Akkulam, Thiruvananthapuram-695011, India

06.09.2024

Dr. K. Anoop Krishnan
Scientist & Supervising Guide
Biogeochemistry Group

CERTIFICATE

This is to certify that **Ms. Shifana M** (Reg. No: 63522138010), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled “ **STUDY OF HYDROCHEMICAL PARAMETERS OF SURFACE AND GROUND WATER BODIES**” in partial fulfilment for the award of **Master's Degree in Chemistry** (2022-2024), St Johns College Anchal, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

Dr. K. Anoop Krishnan
(Supervising Guide)

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हमारे भविष्य हमारी पृथ्वी के लिए प्रतिबद्ध

CERTIFICATE

This is to certify that the dissertation entitled “**STUDY OF HYDROCHEMICAL PARAMETERS OF SURFACE AND GROUND WATER BODIES**” is based on the project work done by **Ms. SHIFANA M** during the academic year 2022-2024 at St. Johns College Anchal. The project was carried out at Biogeochemistry Group, National Centre for Earth Science Studies, Ministry of Earth Sciences, Government of India, Thiruvananthapuram under the guidance of Dr. K. ANOOP KRISHNAN, Scientist E. This report is submitted to the University of Kerala in partial fulfilment of the award of the degree of Master of Science in Chemistry.



Anchal

02-08-2024

A handwritten signature in blue ink, appearing to be "K. Anoop Krishnan".

Supervisor in charge

A handwritten signature in blue ink, appearing to be "Dr. K. Anoop Krishnan".

Head of the Department



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Dr. K. Anoop Krishnan
Scientist & Supervising Guide
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CERTIFICATE

This is to certify that **Ms. Ashna A Thomas**(Reg. No: 63522138004), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled “**COMPREHENSIVE STUDY OF GROUND AND SURFACE WATER QUALITY IN ELAMBA- PARAYADI ZONE, VENJARAMOOD** ”in partial fulfilment for the award of **Master’s Degree in Chemistry** (2022-2024), St. John’s college, Anchal, Kollam, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

Dr. K. Anoop Krishnan
(Supervising Guide)

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CERTIFICATE

This is to certify that Ms. ASHNA A THOMAS, student of Department of chemistry St. John's College Anchal has successfully completed the Project entitled "**COMPREHENSIVE STUDY OF WATER QUALITY OF GROUND AND SURFACE WATER IN ELAMBA-PARAYADI ZONE, VENJARAMOODU**" under the guidance of Dr. K. Anoop Krishnan , National Centre for Earth Science Studies (NCESS), Akkulam,, Thiruvanthapuram during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the Degree of Master of Science in Chemistry of University of Kerala.



Dr. Niecy Mathews

Supervisor in charge

Anchal

02-08-2024



Ms. Simi Saju

Head of the department

MSc. CHEMISTRY





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06.09.2024

Dr. K. Anoop Krishnan
Scientist & Supervising Guide
Biogeochemistry Group

CERTIFICATE

This is to certify that Ms. Ameesha S (Reg. No: 63522138003), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled “**HYDROCHEMICAL ANALYSIS OF IRRIGATION WATER QUALITY AND IRRIGATION INDEX OF DIFFERENT WATER RESOURCES IN NEYYATTINKARA LOCALITY**” in partial fulfilment for the award of **Master's Degree in Chemistry** (2022-2024), St. John's college, Anchal, Kollam, Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

Dr. K. Anoop Krishnan
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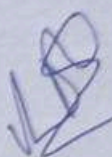
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CERTIFICATE

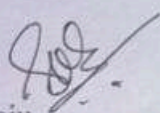
This is to certify that Ms. AMEESHA S, student of Department of chemistry, St. John's College Anchal has successfully completed the Project entitled "HYDROCHEMICAL ANALYSIS OF IRRIGATION WATER QUALITY AND IRRIGATION INDEX OF DIFFERENT WATER RESOURCES IN NEYYATTINKARA LOCALITY" under the guidance of Dr. K. Anoop Krishnan, National Center for Earth Science Studies, Akkulam, Thiruvanthapuram during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the Degree of Master of Science in Chemistry of University of Kerala.

Anchal

02-08-2024


Dr. Arun .P.S

Supervisor in charge


Ms. Simi Saju

Head of the department

M.Sc. Chemistry





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Industrial Estate P.O., Pappanamcode, Thiruvananthapuram, India-695 019

CERTIFICATE

This is to certify that **Ms. Devika L Krishnan** has worked on project entitled “**Harnessing Natural Media for Efficient Faecal Sludge Treatment: A Bench Scale Study**” under my supervision at the Environmental Technology Division, **CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST)**, Thiruvananthapuram for the partial fulfilment of the requirements for the award of the degree of **Master of Science in Chemistry, University of Kerala**. The present work or any part of this has not been submitted to any other University or institution for the award of any degree or diploma.

Thiruvananthapuram
June 2024

Mr. Saurabh Sakhre
Senior Scientist
Environmental Technology Division,
CSIR-NIIST



सौरम साखरे / Saurabh Sakhre
वैज्ञानिक / Scientist
पर्यावरण प्रौद्योगिकी प्रभाग
Environmental Technology Division
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CSIR - National Institute for Interdisciplinary
Science and Technology (NIIST), Govt. of India
तिरुवनन्तपुरम / Thiruvananthapuram-695 019

CERTIFICATE

This is to certify that Ms. DEVIKA L KRISHNAN, student of Department of chemistry, St. Johns College Anchal has successfully completed the Project entitled ***“HARNESSING NATURAL MEDIA FOR EFFICIENT FAECAL SLUDGE TREATMENT: A BENCH SCALE STUDY”*** under the guidance of Mr. Saurabh Sakhre in the Environmental Technology Division (ETD), National Institute For Interdisciplinary Science and Technology(CSIR -NIIST), Thiruvananthapuram during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the Degree of Master of Science in Chemistry of University of Kerala.

Supervisor in charge

Anchal

02-08-2024

Head of the department



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06.09.2024

Dr. K. Anoop Krishnan
Scientist & Supervising Guide
Biogeochemistry Group

CERTIFICATE

This is to certify that **Ms. DEVIKA KRISHNAN L**(Reg. No: 63522138005), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled **HYDROCHEMICAL ANALYSIS AND IRRIGATION INDICES OF COLLECTED WATER SAMPLES** in partial fulfilment for the award of **Master's Degree in Chemistry** (2022-2024), St John's College Anchal ,Kollam. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

Dr. K. Anoop Krishnan
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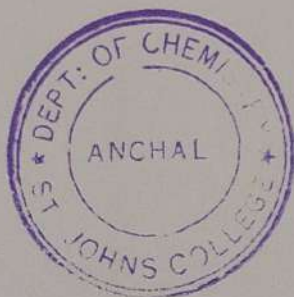
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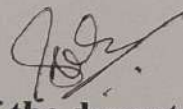
This is to certify that Ms DEVIKA KRISHNAN L, student of Department of chemistry ,St Johns College Anchal has successfully completed the project entitled “ **HYDROCHEMICAL ANALYSIS AND IRRIGATION INDICES OF COLLECTED WATER SAMPLES**” under the guidance of Dr. K. Anoop Krishnan, Scientist E, Biogeochemistry Group, National Centre for Earth Science Studies, Ministry of Earth Sciences, Government of India, Trivandrum during the period April 2024 to June 2024 in partial fulfilment of the requirement for the award of Master of Science in Chemistry of University of Kerala.

Anchal

02-08-2024


Supervisor in charge




Head of the department



Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram 695014, Kerala State, India.
An Autonomous National Institute for Discovery, Innovation & Translation
in Biotechnology and Disease Biology,
Government of India, Ministry of Science & Technology, Department of Biotechnology.

राजीव गांधी जैव प्रौद्योगिकी केन्द्र, तिरुवनन्तपुरम 695014, केरल, भा
जैवप्रौद्योगिकी और रोग जीवविज्ञान में आविष्कार, नवीनता एवं अनुवाद
की स्वायत्त राष्ट्रीय संस्थान,
भारत सरकार विज्ञान एवं प्रौद्योगिकी मंत्रालय, जैवप्रौद्योगिकी विभाग.

LMMD/CERTI/012/06/2024

18/06/2024

Certificate

This is to certify that Ms. Nancy Mariam Kurian, Kottappuram, CKRA-23, Mannanthala PO, Thiruvananthapuram-695015, has successfully completed her training for a period of three months, from 21st March 2024 to 18th June 2024 at the Division of Laboratory Medicine and Molecular Diagnostics, (<https://rgcb.res.in/lmmd.php>) Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, Kerala, India, 695 585 (<http://rgcb.res.in>). During the course of her training she became well versed in molecular biology techniques. Based on her interest in research, technical skills, and intellect I would rate her as one of the best student I have mentored to date.


She has hands on experience in Molecular Biology techniques including Pre-PCR, PCR and Post-PCR Techniques, Electrophoresis, Types of PCR and Sanger Sequencing. This certificate is issued as a part of the completion of training period. Please feel free to contact the undersigned for further information/clarifications regarding Ms. Nancy Mariam Kurian.

Dr. R Radhakrishnan Nair
Scientist F
Head, Laboratory Medicine and Molecular Diagnostics
Chief Scientific Officer, Molecular Forensics and DNA Technologies
Head (Operations), RGCB C-MLS
Rajiv Gandhi Centre for Biotechnology
radhakrishnan@rgcb.res.in

Certificate

This is to certify that Ms. Nancy Mariam Kurian, Student of the Department of Chemistry, St John's College has successfully completed the Project entitled "An Overview on TaqMan Chemistry for Detection of Hepatitis B Virus and its Viral Load" under the guidance of Dr R Radhakrishnan Nair in the Laboratory Medicine and Molecular Diagnostics, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram during the period from March 2024 to June 2024 for the partial fulfilment of the requirements for the Degree of Master of Science in Chemistry of University of Kerala.

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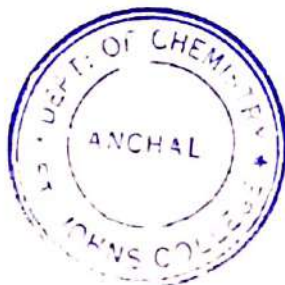
Ms. Simi Saju 

Head of the Department

Date 10.09.2024


Dr Sharow Geeth Vincent

Supervisor in Charge





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CSIR-National Institute For Interdisciplinary Science & Technology (CSIR-NIIST)
 Council of Scientific & Industrial Research | Ministry of Science & Technology, Govt. of India
 Industrial Estate P.O., Pappanamcode, Thiruvananthapuram, India-695 019

21/08/2024

CERTIFICATE

This to certify that the thesis entitled “ **Synthesis of Ca-Al-Fe layered double hydroxide for adsorptive removal of fluoride from wastewater** ” submitted by **SULTHANA FAISY A.L** (Reg. No. 635 22 138 012) to the **University of Kerala** , towards partial fulfilment for the requirements for the award of the degree of Master of Science in Chemistry , is a bonafide record of the work carried out by her at Environmental Technology Division, at **CSIR - National Institute for Interdisciplinary Science and Technology (CSIR-NIIST)** , Pappanamcode, Thiruvananthapuram , under my guidance and supervision. The work is not to be published without prior permission, and intellectual property belongs to CSIR.



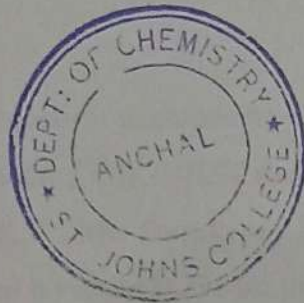
Prathish
 21/08/2024

डॉ. प्रतीष के. पी.
Dr. PRATHISH K. P.
 प्रधान वैज्ञानिक / Principal Scientist
 पर्यावरण प्रौद्योगिकी प्रभाग
 Environmental Technology Division
 सी एस आई आर-राष्ट्रीय अंतर्विषयी विज्ञान तथा प्रौद्योगिकी संस्थान
 CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Govt. of India
 तिरुवनंतपुरम / Thiruvananthapuram-695 019.

CERTIFICATE

This is to certify that Ms. **SULTHANA FAISY A.L** , M.Sc. student of the Department of Chemistry , St. John's College Anchal has successfully completed her project entitled "**SYNTHESIS OF Ca-Al-Fe LAYERED DOUBLE HYDROXIDE FOR ADSORPTIVE REMOVAL OF FLUORIDE FROM WASTEWATER** " under the supervision of Dr.PRATHISH K.P, Principal Scientist, in Environmental Technology Division, CSIR-National Institute for Interdisciplinary Science and Technology(NIIST), Thiruvanthapuram, during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the award of the Degree of Master of Science in Chemistry of University of Kerala.

Anchal

Date : 10.09.2024



Ms. Simi Saju

Head of the Department

Dr. Liji John

Supervisor in charge



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06-09-2024

Dr. K. Anoop Krishnan
Scientist & Supervising Guide
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This is to certify that **Ms. Ameena N.R** (Reg. No: 63522138002), a bonafide full-time student of Kerala University, successfully has completed her dissertation entitled **"HYDROLOGICAL ASSESSMENT OF SURFACE AND GROUND WATER USING WATER QUALITY INDEX "** in partial fulfilment for the award of **Master' s Degree in Chemistry** (2022-2024), St.John's College Anchal,Kerala. This is an authentic record of the original research work carried out by her under my supervision and guidance, and no part of this work has been used for any other degree before. The work has been carried out in the Central Chemical Laboratory, Biogeochemistry Group, **National Centre for Earth Science Studies**, Ministry of Earth Science Studies, Akkulam, Trivandrum, Government of India.

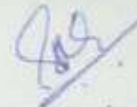
Dr. K. Anoop Krishnan
(Supervising Guide)

CERTIFICATE

This is to certify that MS. AMEENA N.R, student of Department of Chemistry, St.John's College Anchal has successfully completed the project entitled "HYDROLOGICAL ASSESSMENT OF SURFACE AND GROUND WATER USING WATER QUALITY INDEX" under the guidance of Dr .K Anoop Krishnan in the Biogeochemistry Department, National Centre for Earth Science Studies (NCESS), Thiruvananthapuram during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the Degree of Master of Science in Chemistry of University of Kerala.

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Date: 09/09/2024



Supervisor in charge



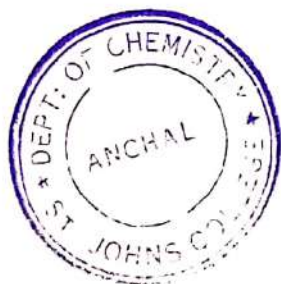
Head of the department

Head of the Department
Department of Chemistry
St. John's College
Anchal - 691306

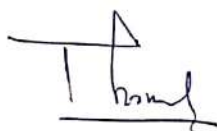
CERTIFICATE

This is to certify that Ms. SHEETHAL SAM JOHN, student of Department of Chemistry, St Johns College Anchal has successfully completed the project entitled "SYNTHESIS AND PHOTOPHYSICAL PROPERTIES OF DIFLUOROBORONATED ACYLHYDRAZONE DYES (BOAHY) under the guidance of Dr. Shandev P P, Department of Applied Chemistry, Cochin University of Science and Technology, Kochi during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the Degree of Masters of Science in Chemistry of University of Kerala.

Anchal



Date:


Supervisor in charge


Head of the Department

Dr. Shandev P. P.

Assistant Professor

CERTIFICATE

This is to certify that Ms. SHEETHAL SAM JOHN has worked on "SYNTHESIS AND PHOTOPHYSICAL PROPERTIES OF DIFLUOROBORONATED ACYLHYDRAZONE DYES (BOAHY)" under my supervision at the Department of Applied Chemistry, Cochin University of Science and Technology, Kochi, for the partial fulfilment of the Degree of Master of Science in Chemistry at St Johns college, Anchal during April-May 2024.

Kochi

August 2024



Dr. Shandev P. P.

Dr. Shandev P.P.
Assistant Professor
Department of Applied Chemistry
Cochin University of Science
& Technology (CUSAT)

email: shan@cusat.ac.in; Phone: 91-9544627882

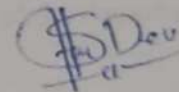
Dr. Shandev P. P.
Assistant Professor

CERTIFICATE

This is to certify that Ms. SHERNA S has worked on "SYNTHESIS OF INDOLOCARBAZOLE BASED POLYAROMATIC HYDROCARBONS" under my supervision at the Department of Applied Chemistry, Cochin University of Science and Technology, Kochi, for the partial fulfilment of the Degree of Master of Science in Chemistry at St Johns college, Anchal during April-May 2024

Kochi

August 2024



Dr. Shandev P. P.

Dr. Shandev P.P.
Assistant Professor
Department of Applied Chemistry
Cochin University of Science
& Technology (CUSAT)

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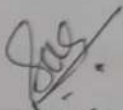
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This is to certify that Ms. SHERNA S, student of Department of chemistry, St.Johns College Anchal has worked on "SYNTHESIS OF INDOLOCARBAZOLE BASED POLYAROMATIC HYDROCARBONS" under my supervision at the Department of Applied Chemistry, Cochin University of Science and Technology, Kochi, for the partial fulfilment of the requirements for the Degree of Master of Science in Chemistry of University of Kerala, during April-May 2024

Anchal

Date:




Supervisor in charge


Head of the department



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This is to certify that **Ms. Sony George** has worked on project entitled “**Enhancing Faecal Sludge Treatment: Study on Effects of Mixing and Inoculation on Organic Matter Degradation**” under my supervision at the Environmental Technology Division, CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST), Thiruvananthapuram for the partial fulfilment of the requirements for the award of the degree of **Master of Science in Chemistry, University of Kerala**. The present work or any part of this has not been submitted to any other university or institution for the award of any degree or diploma.

Thiruvananthapuram
June 2024

Mr. Saurabh Sakhre
Senior Scientist
Environmental Technology Division,
CSIR-NIIST



सीरम साखरे / Saurabh Sakhre
वैज्ञानिक / Scientist
पर्यावरण प्रौद्योगिकी प्रभाग
Environmental Technology Division
सी एस आई आर - राष्ट्रीय अंतर्विषयी विज्ञान तथा प्रौद्योगिकी संस्थान
CSIR - National Institute for Interdisciplinary
Science and Technology (NIIST), Govt. of India
तिरुवनंतपुरम / Thiruvananthapuram-695 019

CERTIFICATE

This is to certify that Ms. SONY GEORGE, M.Sc. student of the Department of Chemistry , St. John's College Anchal has successfully completed her project entitled "**ENHANCING FAECAL SLUDGE TREATMENT:STUDY ON EFFECTS OF MIXING AND INOCULATION ON ORGANIC MATTER DEGRADATION**" under the supervision of Mr. Saurabh Sakhre,Senior Scientist in Environmental Technology Division, CSIR-National Institute for Interdisciplinary Science and Technology(NIIST), Thiruvanthapuram,during the period April 2024 to June 2024 for the partial fulfilment of the requirements for the award of the Degree of Master of Science in Chemistry of University of Kerala.

Anchal

Date:



A handwritten signature in blue ink, appearing to read "S.S.", written over a horizontal line.

Ms. Simi Saju

Head of the Department

A handwritten signature in blue ink, appearing to read "Niecy", written over a horizontal line.

Dr. Niecy Elsa Mathews

Supervisor in charge



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CERTIFICATE

This is to certify that the thesis entitled “**INVESTIGATION ON ILMENITE REDUCTION PROCESS AND SYNTHESIS OF NANO TITANIA**” carried out by **Ms. AISWARYA GIRI S** is a bonafide record of research work carried out from April 2024 to June 2024 under my supervision and guidance at Material Science and Technology Division(MSTD) of CSIR- (NIIST),Thiruvanthapuram in partial fulfillment of degree of Master of Science in Chemistry of University of Kerala, Thiruvanthapuram and that no part there of has been submitted earlier for any other Degree.

23/08/2024

Thiruvanthapuram

Guide of Host Institution

Dr.K.Jayasankar



डॉ. के. जयशंकर / Dr. K. JAYASANKAR

प्रधान वैज्ञानिक / Principal Scientist

पदार्थ विज्ञान तथा प्रौद्योगिकी प्रभाग

Materials Science & Technology Division

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