

EAGE



EAGE GEOTECH

THE SECOND EAGE GEOSCIENCE TECHNOLOGIES
AND APPLICATIONS CONFERENCE 2022

4 - 6 APRIL 2022 | LONDON, UK

Third EAGE Workshop on
Distributed Fibre
Optics Sensing

First EAGE Workshop on
Reservoir Management
in Mature Fields

Sixth EAGE Workshop on
CO₂ Geological
Storage

CONFERENCE PROGRAMME

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Welcome to The Second EAGE Geoscience Technologies and Applications Conference 2022

Third EAGE Workshop on
Distributed Fibre
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Reservoir Management
in Mature Fields

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LOCAL CHAIR WELCOME



Dear Colleagues,

With the world slowly emerging from the Covid pandemic and moving to a new normal, it is my pleasure to welcome you to the Second EAGE GeoTech Conference in London from 4-6 April 2022. The conference presents another opportunity where diverse minds can once more come together to reflect on how we can deliver a sustainable subsurface for the future.

Energy demand is forecasted to continue to grow for at least part of the period to 2050 with an ever-greater need to materially address climate change. In this time frame, we will continue to see the structure of energy demand fundamentally shift, with a declining role for fossil fuels, of which gas is likely to prove the more resilient, offset by an increasing share from renewable energy and a growing role for electricity. The pace with which the Energy Transition will progress remains uncertain and difficult to predict (1).

With gas and advantaged oil continuing to underpin evolving energy portfolios for decades to come and the need for carbon storage rising, coupled with growing footprints in renewable energy such as wind and geothermal, the need for subsurface talent will remain strong.

EAGE GeoTech 2022 plans to bring together a diverse audience of experts to focus on key challenges across the subsurface domain.

To remain competitive in maturing our fields where value is at the heart of the investment decision, we will need to become truly predictive about our reservoirs, while constantly monitoring and optimising their performance. This through deeply integrating our workflows helped by digital solutions to reduce cycle time, explore alternative interpretations, quantify uncertainty, and drive data insights, further enabled by quality affordable seismic.

In our approach to storing CO₂ safely and permanently, as either a service or in the context of Hydrogen production and/or carbon trading, we will benefit in our quest for stores from the rigour and knowledge already established in managing oil & gas reservoirs, while expanding our knowledge and impact to the overburden. The conventional subsurface disciplines will need to flex to incorporate disciplines traditionally seen as niche: overburden geohazards, hydrogeology, geomechanics and geochemistry to name some. Integration of data and toolkit to incorporate all facets from reservoir to surface is highly desirable and approach to containment and risk evaluation will need to factor the long term. Significant innovation is still required on how we effectively verify and monitor the CO₂ stored in place with solutions other than seismic as current 4D seismic solutions may prove too costly. At the same time, regulators will need to be clear on what is expected in terms of measuring, monitoring and verification, while the industry needs to educate regulators on the technical possibilities and limitations subsurface technologies have.

And is there a role for fibre? Sand monitoring distributed acoustic sensing and permanent seismic monitoring are but some of the applications in which we see fibre profiling itself as a key subsurface technology.

The EAGE GeoTech Conference and Exhibition offers a fantastic opportunity for the subsurface community to meet and exchange views and best practices. The different programmes are brought together to encourage cross-discipline pollination and create a forum for discussion and collaboration on how to best address some of the challenges the industry is facing going forward.

I very much look forward to seeing you in London.

Herlinde Mannaerts-Drew
Local Conference Chair - EAGE GeoTech 2022

ABOUT THE CONFERENCE

The Second EAGE Geoscience Technologies and Applications Conference is dedicated to the use of integrated geoscience solutions and technologies in a wide range of subsurface, reservoir and production challenges. EAGE GeoTech 2022 brings together leading experts in geoscience, reservoir engineering, drilling and data science to tackle some of the major challenges facing the industry.

The technical programme will seek to examine how we can leverage the latest technologies and best practices for converting geophysical data into key business value and optimal subsurface monitoring and management solutions. Other key themes to be addressed include: real-time data strategies, multidisciplinary data integration and automation for interpretation and analytics.

The innovative format of the Conference brings together three multidisciplinary workshops under one comprehensive conference programme. This will provide cost savings for attendees while providing unique opportunities for crossover knowledge exchange and interaction.

The featured workshops are:

- Sixth EAGE Workshop on CO2 Geological Storage
- Third EAGE Workshop on Distributed Fibre Optic Sensing
- First EAGE Workshop on Reservoir Management of Mature Fields

The Technical Programme also offers a complementary course:

Distributed Fibre Optic Sensing course **Monday 4 April 2022 (11:35 - 17:05)**

Convened by Mahmoud Farhadiroushan (Silixa)

This complimentary course provides an introduction to fibre optics and the basic principles of distributed sensing technology. It also covers key components, cable designs and installation methods for onshore and offshore completions. Case studies focusing on the implementations and applications across the oil and gas industry will be presented in order to gain a better understanding of the practical benefits of distributed fibre optic sensing technology. Advanced system architectures to address future applications, such as subsea wells, will be also highlighted.



GENERAL INFORMATION

Venue

Renaissance London Heathrow Hotel

Bath Rd, Hounslow
TW6 2AQ, United Kingdom

Included in your registration

- Access to all workshops & course
- Lunch & Coffee Breaks
- Networking Reception (Monday 4 April)
- Conference Dinner (Tuesday 5 April)

Speakers

Please visit the technician desk at the start of the day to upload your presentation files.

EAGE GeoTech Mobile App

In this conference, you can make use of the EAGE Event App to easily find the conference technical programme, speakers information, and have access to all latest updates. You can download the Event App via your App Store or Play Store by searching for european association of geoscientists/EAGE. You can also use one of the QR codes below.



You will need an event code and a personal 4-digit PIN code to open the Event App (only at the first login).

Event code: GEOTECH22

PIN code: You can find it on your "Be well prepared" email.

For more information on the app, please ask a member of staff.

SOCIAL PROGRAMME

EAGE offers you the opportunity to get to know your fellow workshop participants in a more informal environment. Please inform one of the EAGE staff members on-site if you would like to attend.

Networking Reception

Monday 4 April 2022, 17:20 - 19:20 hrs

A Networking Reception is being organized in the Waterloo Suite of the Renaissance London Heathrow Hotel (conference venue).

Conference Dinner



Tuesday 5 April 2022, 19:00 - 22:00 hrs

A Conference Dinner is being organized in the Waterloo Suite of the Renaissance London Heathrow Hotel (conference venue).

WIFI

Free wifi is available in the hotel.


Presentations | Monday 4 April

BLACKFRIARS SUITE		SOUTHWARK SUITE	
GeoTech Opening Session Chair: C.M. Gibson-Poole			
9:00	Welcome Address - Subsurface and the Energy Transition, Challenging the Status Quo - H. Mannaerts-Drew BP		
9:10	Quest CCS Project - S. O'Brien Shell Canada		
9:40	CO2 storage in Norway- Experiences and preparation for a CCS business case E. Halland Norwegian Petroleum Directorate		
10:10	Panel		
11:05	Coffee break	11:05	Coffee break
			
CO2 Workshop - Numerical Modelling Approaches Chair: I. Czernichowski-Lauriol (BRGM)		Distributed Fibre Optic Sensing Workshop - Course Chair: M. Farhadiroushan (Silixa)	
11:35	Simulators for the gigaton storage challenge. A benchmark study on the regional Smeaheia model. - T.H. Sandve ^{1*} , A.B. Rustad ² , A. Thune ⁴ , B. Nazarian ² , S. Gasda ¹ , A.F. Rasmussen ⁴ ¹ NORCE AS; ² Equinor ASA; ³ SINTEF; ⁴ Simula Research Laboratory AS	11:35 - 17:05	
11:55	The Impact of Background Water Flow on CO2 Plume Migration in a Tilted Aquifer - M. Awag ^{1*} , E. Mackay ¹ , S. Ghanbari ¹ ¹ Heriot-watt University		
12:15	Geologic CO2 Storage Optimization under Geomechanical Constraints - N. Khoshnevis Gargar ^{1*} , E.G.D. Barros ¹ , D. Loeve ¹ , S.P. Szklarz ¹ , O. Leeuwenburgh ¹ ¹ Applied Geosciences, TNO		
12:35	Numerical modeling on CO2-EOR and its storage potential: a case study of Iranian off-shore oil field - M. Babashah ¹ , F. Fereydoonian ¹ ¹ University of Tehran		
12:55	Lunch		
CO2 Workshop - Case Studies Chair: R. Farajzadeh (Shell International E&P BV)			
13:55	Barents Blue Storage Project M. Sola Horisont Energi As		
14:25	Svelvik CO2 Field lab - update on site behaviour and fluid migration during CO2 injection - M. Jordan ^{1*} , P. Eliasson ¹ , A. Grimstad ¹ , G. De Jager ¹ ¹ SINTEF Industry		
14:45	Caprock characterization of the Northern Lights CO2 storage project, offshore Norway - N.H. Mondol ^{1*} , L. Grande ² , T.I. Bjørnarå ² , N. Thompson ³ ¹ University of Oslo and NGI; ² Norwegian Geotechnical Institute; ³ Northern Lights JV		
15:05	Assessment of a Neogene CCS Prospect using 3D Seismic Analysis, Norwegian North Sea - S. Coskun ^{1*} , M. Huuse ¹ ¹ University Of Manchester		
15:25	Coffee break		
CO2 Workshop - Monitoring Technologies 1 Chair: F. Delprat-Jannaud (IFPEN)			
15:55	Attenuation measurement for monitoring injected CO2 at CaMI Field Research Station, Alberta, Canada - Y. Wang ^{1,2*} , D. Lawton ^{1,2} ¹ University of Calgary; ² Carbon Management Canada		
16:15	Supporting renewables by making HD seismic simple and affordable - A. Ourabah ^{1*} , D. Lawton ² , A. Chatenay ³ ¹ STRYDE; ² Carbon Management Canada; ³ Explor		
16:35	Cost-effective seismic surveying for CO2 storage: Learnings from Smeaheia/Øygarden Survey planning. - R. Martinez ^{1*} , K. Duffaut ¹ , P. Ringrose ^{1,2} , A. Santi ¹ , S. David ³ , T. Trudeng ³ ¹ Department of Geoscience and Petroleum, Norwegian University of Science and Technology; ² Equinor Research Center; ³ Magseis Fairfield		
16:55	CO2 workshop discussion		
17:05	End of day 1	17:05	End of day 1
17:20	Networking Reception	17:20	Networking Reception

Presentations | Tuesday 5 April

BLACKFRIARS SUITE		SOUTHWARK SUITE	
 <p>Sixth EAGE Workshop on CO2 Geological Storage</p>		 <p>Third EAGE Workshop on Distributed Fibre Optics Sensing</p>	
CO2 Workshop - Regional Screening Chair: R. Berenblyum		DFOS Workshop - Geotechnical Chair: S. Soulas (LYTT)	
09:25	NetZeroTeesside Project	09:05	The theory and practice of wireline and disposable fibre in horizontal wells for cross well and microseismic monitoring M. LeBlanc Halliburton
09:55	Basin-scale CO2 storage site screening – an example from the Northern North Sea Basin - M. Booth ^{1*} , R. Porjesz ¹ , S. Otto ² , G. Duval ¹ , P. Park ¹ , A. Khalid ¹ , C. Olivares ² , S. Calvert ¹ , A. Satterley ¹ ¹ CGG; ² CGG	09:35	Distributed Brillouin Strain and Temperature Sensing in Underground Structures - M. Facchini ^{1*} , N. Noether ¹ ¹ fibrisTerre Systems GmbH
10:15	Predicting past and future diagenesis in CCUS reservoirs. to assess storage capacity and injectivity M. Brouwers Getech	09:55	Continuous DAS recording with permanent seismic sources reveals peculiar tube waves associated with the fluid flow - R. Isaenkov ^{1*} , A. Yurikov ¹ , K. Tertyshnikov ¹ , B. Gurevich ¹ , R. Pevzner ¹ ¹ Curtin University
10:35	Coffee break	10:15	Distributed Fibre Optic Strain Sensing of ground deformations for CO2 storage monitoring - P. Sparrevik ^{1*} , H.J. Meland ¹ , J. Park ¹ , B. Bohliol ¹ ¹ NGI
CO2 Workshop - Monitoring Technologies 2 Chair: S. Krevor (Imperial College London)		DFOS Workshop - Integration Chair: M.E. Willis (Halliburton)	
11:05	Quantification of Injected CO2 Volumes from 4D Seismic Anomalies & Associated Uncertainties - T. Berridge ^{1*} , E. Rebel ¹ , T. Blanchard ¹ , D. Rappin ¹ , C. Le Magoarou ¹ ¹ TotalEnergies	11:05	Enhancing Ambient Noise Interferometry for DAS: Selective Stacking and Hybrid Seismic Receivers - W. Zhou ¹ , A. Butcher ^{1*} , J. Kendall ² , A. Stork ³ ¹ University of Bristol; ² University of Oxford; ³ Silixa Ltd
11:25	MMV long term strategies to calibrate and support CO2 storage flow models using focused seismic - H. Al Khatib ^{1*} , E. Morgan ¹ , V. Brun ¹ ¹ SpotLight	11:25	Monitoring reservoir production dynamic changes using time-lapse Walkaway DAS-VSP data - G. Yu ^{1,2*} , Y. Chen ^{1,2} , J. Wu ² , X. Wang ² , S. Xia ² ¹ BGP Inc. CNPC; ² Optical Science and Technology (Chengdu) Ltd.
11:45	Hybrid structural petrophysical joint inversion as a novel inversion technique for CO2 monitoring - M. Jordan ^{1*} , D. Rippe ^{1,2,3} , R. Anouar ¹ , P. Eliasson ¹ , C. Schmidt-Hattenberger ² ¹ SINTEF Industry; ² GFZ German Research Centre for Geosciences; ³ BGE Bundesgesellschaft für Endlagerung mbH	11:45	Modeling approach for evaluating time-lapse effects of CO2 storage on particle velocity and strain rate data - B. Paap ^{1*} , T. Bhakta, V. Vandeweyer, T. Mannseth ¹ TNO
12:05	Monitoring and appraisal of CCUS projects: remote sensing using 3D and 4D seismic data - R. Williams ^{1*} , C. Han ¹ ¹ Geoteric	12:05	Measuring floating ice thickness with Distributed Acoustic Sensing: a case study on a frozen mountain lake - D. Nziengui ¹ , O. Coutant ² , C. Jestin ^{1*} , L. Moreau ² ¹ FEBUS Optics; ² ISTERre, Université de Grenoble
12:25	Lunch	10:35	Lunch
CO2 Workshop - Regional Approaches Panel Chair: M. Sohrabi (Heriot-Watt University)		DFOS Workshop - Surveillance Chair: Y. Li (Blue Sky DAS)	
13:25	Panel Research, developments and implementation opportunities of CCS technology in Croatia D. Vulin University of Zagreb	13:25	DAS Fiber Optic Monitoring of an Active Landslide - S. Cole ^{1*} , M. Karrenbach ¹ , V. Yartsev ¹ , P. Clarkson ² ¹ OptaSense; ² OptaSense
13:55	Panel Towards Net Zero Carbon Emission through Putting Carbon Back Underground R. Masoudi PETRONAS	13:45	Results from the world's first subsea DAS VSP acquisition in the Atlantis field. - S. Soulas ^{1*} , G. Naldrett ² , J. Van Gestel ³ ¹ LYTT; ² Silixa Ltd; ³ bp America
14:25	Panel discussion	14:05	Slow-Strain Monitoring for Well-Integrity using DAS and Brillouin-OTDR - V. Lanticq ^{1*} , F. Bayoua ¹ , G. Calbris ¹ , M. Villar ¹ , A. Chérubini ¹ ¹ Febus Optics
CO2 Poster Session		14:25	Discussion
14:45	Impact of Impurities and it's Concentration on CO2 Injectivities - G. Mwenketishi ^{1,2*} ¹ Dr Nejat Rahmanian; ² Prof Hadj Benkreira	15:00	Coffee break
15:00	Coffee break		
Joint Session - CO2 Monitoring Technologies Chair: A.M Cheese (Gassnova)			
15:30	DAS Deployed at Seabed for CO2 Storage Monitoring - E. Rebel ^{1*} , V. Bremaud ¹ , E. Zamboni ¹ , C. Sagary ² ¹ TotalEnergies; ² Alcatel Submarine Network		
15:50	New concepts for independent and transparent monitoring of CO2 storage verification - V. Oye ^{1*} , B. Goertz-Allmann ¹ , N. Langet ¹ , A.M. Dichiarante ¹ , D. Kuehn ¹ ¹ NORSAR		
16:10	Carbon Management Canada CaMI Field Research Station: advancing monitoring technologies for CCS - M. Macquet ^{1*} , B. Kolkman-Quinn ² , D. Lawton ^{1,2} ¹ Carbon Management Canada; ² University of Calgary		
16:30	Discussion - Is there a need for an European independent CCS monitoring network? A.M Cheese (Gassnova)		
17:00	End of day 2	17:00	End of day 2
17:20	Conference dinner	17:20	Conference dinner

Presentations | Wednesday 6 April

BLACKFRIARS SUITE	
 First EAGE Workshop on Reservoir Management in Mature Fields	
Mature Fields Workshop - Opening Session	
Chair: K. Stephen (Heriot-Watt University)	
09:25	In-situ water saturation by LF-NMR and supervised learning - application to Canadian oil sands - S. Markovic ^{2*} , J.L. Bryan ³ , A. Cheremisin, R. Rezaee ² , A. Kantzas ³ ² Curtin University; ³ University of Calgary
09:45	Successful Application of High-Performance Computing for Accelerating Uncertainty and Optimisation Analysis - W.F. Wan Shamshudin ^{1*} , N. Hamza ¹ , G. Iskenova ² ¹ Petronas Carigali Sdn Bhd; ² Schlumberger Limited
10:05	Discussion
Mature Fields Workshop - EOR	
10:25	Experience of low-frequency wave action on sandstone in the Perm region - V. Poplygin, C. Qi ² , M. Guzev, E. Kozhevnikov, M. Turbakov, E. Riabokon ² Beijing High Institution Research Center for Engineering Structure and New Material and International Cooperation Base for Transportation Infrastructure Construction
10:45	Confined core flooding test for tight rock with hydrocarbon gas as an EOR agent - A. Ushakova, E. Mukhina, D. Bakulin, T. Unusov, A. Kasyanenko, A. Cheremisin
11:05	Coffee break
Mature Fields Workshop - Surveillance and Monitoring	
Chair: M.C. Riviere (BP)	
11:35	Optimization of Artificial Lift selection in a mature waterflood using physics-embedded machine learning - C. Calad ^{1*} , J. Rafiee ¹ , P. Sarma ¹ , S. Plotno ¹ ¹ Tachyus
11:55	Flow and Sweep Information from Tracer Data in Mature Water Floods - E. Nikjoo ^{1*} , O. Huseby ² ¹ RESMAN; ² RESMAN
12:15	Locating the Remaining Oil by a Novel Hybrid Data-Driven Physics-Compliant Technique, Under 4D Constraints - B. Moradi ^{1*} , S. Taheri ² , J. Brain ² , J. Churchill ² , K. Jeffrey ² , S. Liebnitz ² , R. Singlehurst-Ward ² , G. Stone ² , O.J. Sandal ¹ , L. Alessio ¹ ¹ Three60Energy; ² Shell U.K. Limited
12:35	High Resolution 3D Electromagnetic Inversion In A Mature Carbonate Field - A. Walmsley ^{1*} , W. Fares ¹ , N. Clegg ¹ , A. Duriez ¹ , M. Singh ² , P. Thakur ² , M. Al-Mansoori ² , S. Al-Arifi ² , M. Bazuhair ² , M. Al Baloushi ² , M. El Gohary ² , S. El-Abd ² ¹ Halliburton; ² ADNOC Onshore
12:55	Lunch
Mature Fields Workshop - Poster Session	
Chair: Y. Biryaltseva (Equinor ASA)	
13:55	Application of 3DP-models in laboratory studies of oil and gas containing rocks - E. Kozhevnikov, E. Riabokon, M. Turbakov, V. Poplygin
14:10	Unveiling Subsurface True Potential via Machine Learning Application as part of Remaining Hydrocarbon Mapping & Analysis - M.Z.F. Mohd Fauzi ¹ , H. Hasani ¹ , A. Shahbazi ^{1*} , R. Masoudi ² ¹ RiseHill Energy Solution Ltd; ² PETRONAS Sdn. Bhd.
14:25	The productivity evaluation and interlayer interference of multilayer co-production in tight gas reservoir - X. Chai ^{1*} , L. Tian ^{1,2} , R. Zhang ³ , S. Wang ⁴ , J. Wang ^{1,2} , L. Jiang ^{1,2} ¹ China University Of Petroleum(Beijing); ² State Key Laboratory of Petroleum Resources and Prospecting; ³ Beijing Gas Group Company Limited; ⁴ CNOOC
14:40	Discussion
14:55	End of day 3



TECHNICAL COMMITTEES

Sixth EAGE Workshop on CO2 Geological Storage

Roman Berenblyum*	NORCE Norwegian Research Center AS
Isabelle Czernichowski	Lauriol-BRGM
Florence Delprat-Jannaud	IFP Energies nouvelles
Rouhi Farajzadeh	Shell
Catherine Gibson-Poole*	BP
Sam Krevor	Imperial College London
Donald Lawton	University of Calgary
Filip Neele	TNO
Kari-Lise Rørvik	Gassnova
Mehran Sohrabi	Heriot

*Co-Chairs

Third EAGE Workshop on Distributed Fibre Optics Sensing

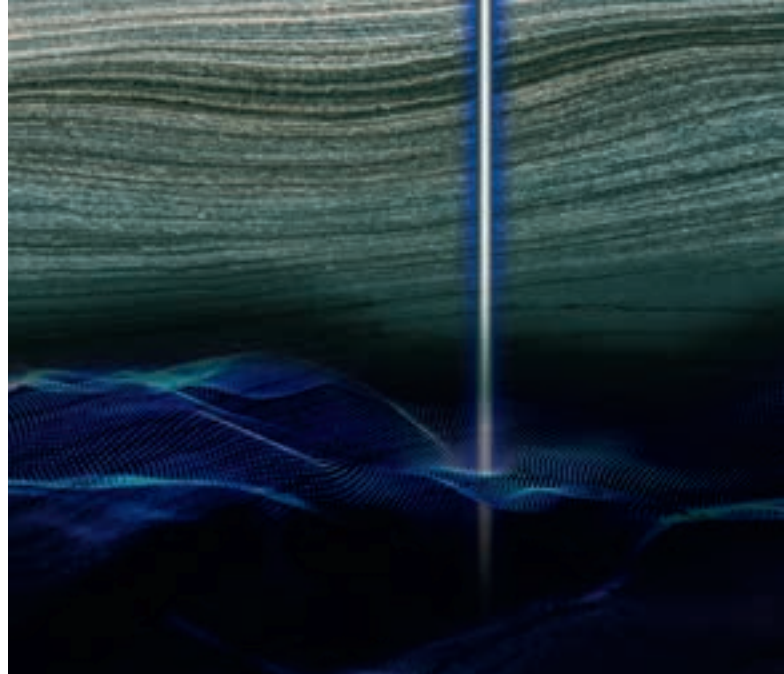
Mahmoud Farhadiroushan*	Silixa
Giuseppe Galli	Eni
Jean-Paul van Gestel	BP
Martin Karrenbach	OptaSense
Vincent Lanticq	Febus Optics
YingPing Li	Blue Sky DAS
Sara Moriggi*	Eni
Nils Noether	fibrisTerre Systems GmbH
Roman Pevzner	Curtin University
Sebastien Soulas	LYTT
Ali Tura	Colorado School of Mines
Mark Willis	Halliburton
Andreas Wuestefeld	NORSAR

*Co-Chairs

First EAGE Workshop on Reservoir Management of Mature Fields

Mark Bentley*	TRACS International
Karl Stephen*	Heriot-Watt University
Ann Muggeridge	Imperial College
Susan Fellows	CMG
Martin Riviere	BP
Yulia Biryaltseva	Equinor
Sean Kelly	EnQuest

*Co-Chairs



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Workshop Sponsor: Third EAGE Workshop on Distributed Fibre Optics Sensing



CONTACT

EAGE GeoTech 2022 is organized by the EAGE Europe Office. For enquiries please contact the EAGE Europe office at +31 889955055 or email eage.events@eage.org For up-to-date information visit: geotech.eage.org

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