# EDITORIAL HIGHLIGHTS

## 10-09-2026

## GS 2: INTERNATIONAL RELATIONS THE HINDU

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# Tensions flare as Iran, U.S. step up strikes

- U.S. attacks Iranian tankers; in response, Tehran targets 20 ships trying to pass through the Strait
- Brent futures cross $100 a barrel for first time since July 2024 as the conflict defies resolution
- Trump says war will end 'immediately' after the U.S. votes in the midterm elections in November

Stanly Johny

Tensions between the United States and Iran flared again on Tuesday night after U.S. forces struck five Iranian oil tankers in retaliation for what Washington said was Tehran's attack on its warships near the Strait of Hormuz. Iran responded by firing a barrage of ballistic missiles at the U.S. base in Al-Azraq in Jordan and targeted at least 20 ships trying to pass through the Strait, said the Islamic Revolutionary Guard Corps (IRGC).

This is the second U.S. strike on Iranian oil tankers in less than a week, which U.S. Central Command (CENTCOM) said was a direct response to Iran's attacks on American warships enforcing a naval blockade on Iranian ports.

On Tuesday night, CENTCOM said in a statement that U.S. forces destroyed five Iranian crude oil carriers after the IRGC targeted a Navy warship with ballistic missiles twice over the past two days. Iran's attacks against the U.S. warships are seen as a risky move aimed at breaking the naval blockade which has largely prevented the Islamic Republic from exporting oil out of the Gulf waters.

**'Full control of Strait'**

"In response to Iran's most recent failed attacks, CENTCOM destroyed the IRGC crude oil carriers *M/T Kaviz*, *M/T Charminar*, *M/T Horizon 1*, and *M/T Riesco* in the Gulf of Oman as well as *M/T Derya* near Kharg Island. American forces directed the crews to abandon ship before the vessels were struck and rendered inoperable," CENTCOM said.

The IRGC, however, said in a statement that its forces continue to exercise full control over the Strait of Hormuz.

An image released by the U.S. Navy on Wednesday shows a sailor on the flight deck of guided-missile destroyer *USS Mason*. AFP

The war that U.S. and Israel launched against Iran on February 28 has gone through phases of escalation and temporary respite over the past six months. The latest phase has seen both sides increasingly target oil tankers, opening a new front in the naval war.

Brent crude futures breached $100 a barrel on Wednesday, for the first time since July 2024.

On September 5, CENTCOM had announced that it had "destroyed" three Iranian tankers after the IRGC launched missiles at a U.S. aircraft carrier and a guided-missile destroyer. On Tuesday, the IRGC claimed that it had struck two U.S. Navy destroyers operating near the Strait of Hormuz. CENTCOM, however, said on Wednesday that no U.S. Navy warship had been hit.

**IRGC Navy's retaliation**

"All IRGC attempted attacks failed. Meanwhile, U.S. forces have successfully destroyed 10 Iranian tankers in just the last week. These vessels were part of a multibillion-dollar shadow network that funds the IRGC, and Iran cannot defend them," CENTCOM claimed in a social media post.

"The IRGC Navy, in response to the aggression and hostility of the U.S. military in its attack on five Iranian oil tankers in the Persian Gulf, targeted two U.S. vessels and eight oil tankers in the area, inflicting heavy damage on them," the IRGC said, adding that 10 ships attempting to pass through "a prohibited and unsafe area" of the Strait were also targeted. "The Strait of Hormuz remains firmly under the surveillance and management of the capable and valiant IRGC Navy," it said.

Meanwhile U.S. president Donald Trump said on Wednesday night he believes the war will end "immediately" after his country votes in midterm elections in November.

"I think the war will end immediately after the election" because Iran "cannot hold out any longer," Mr. Trump told journalists, accusing Tehran of being "desperate to try and affect" the vote. Oil prices that spiked because of Iran war likely will not come down until after the midterm elections, he said.

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# GS 2: POLITY

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# MHA proposes new Chapter 'K' under Article 371 for Ladakh

**Provision being made to bring elected body for Union Territory; civil society members who attended MHA meet say they were 'disappointed' as they are yet to receive draft proposal; they also sought compensation for families of violence victims**

**Vijaita Singh**
NEW DELHI

The Union Ministry of Home Affairs (MHA) has proposed an elected body for the Union Territory (UT) of Ladakh by introducing a new constitutional provision under Article 371 of the Constitution in a proposed Chapter K, civil society members who attended a meeting with MHA officials in Delhi on Wednesday said.

Cherring Dorjay Lakruk of the Leh Apex Body (LAB) told *The Hindu* that they were "disappointed" as this was a reiteration of the May 22 meeting, and were given a PowerPoint presentation mentioning Chapter K on Wednesday but were yet to get a detailed "draft proposal" from the MHA.

A statement released by the civil society members said, "The MHA stated that the intended UT-level body, would be elected by direct election, and would have legislative powers with respect to land, culture and language, forest, environment, natural resources, and any other subject matter reserved for the UT under Article 240."


**Making a point:** People from Ladakh have staged several protests over the years seeking Statehood. ANI

Ladakh chief secretary Ashish Kundra, who attended the meeting, said in a post on X, "Attended the sub-committee meeting with leaders of Ladakh at MHA in Delhi today. A general air of positivity prevailed as the broad contours of a Sui-generis model of governance under Article 371 of the Constitution were discussed. Deepening democracy is the goal."

Representatives of the LAB and the Kargil Democratic Alliance (KDA) asked the MHA to ensure that the Lieutenant-Governor of Ladakh does not take any major decisions concerning the administration, bureaucracy or land until the proposed constitutional safeguards are put in place, while pressing for the legislation to be passed in the upcoming Winter Session of Parliament.

The members also sought compensation for the families of the victims of the violence that broke out on September 24, 2025, in Leh city, where four people were killed in police firing. They further sought the withdrawal of criminal cases against 80 people, along the lines of the protection afforded to those who took part in the "Gen Z protest" at Delhi's Jantar Mantar in July. The violence in Ladakh erupted amid a protest that was called to demand constitutional safeguards.

Article 371, which currently has chapters that run from A to J, deals with "Temporary, Transitional and Special Provisions" and exists under Part XXI of the Constitution. It is currently applicable in 12 States: Nagaland, Assam, Manipur, Mizoram, Maharashtra, Gujarat, Andhra Pradesh, Telangana, Arunachal Pradesh, Goa, Sikkim, and Karnataka.

After Ladakh lost its special status under Article 370 of the Constitution as part of the erstwhile State of Jammu and Kashmir, it was turned into a Union Territory without a legislative assembly in 2019. Since then, the LAB and the KDA have been demanding Statehood and tribal status for Ladakh and seeking a larger role for local residents in decisions relating to land and infrastructure projects.

Climate activist Sonam Wangchuk, who was also part of the delegation that met MHA officials, said, "We cannot say that the meeting was a complete success. We hoped to get a draft proposal assuring us protection under Article 371. However, that was not provided. We have asked the government to take back the cases registered against protesters after last year's incident in Leh city."

# GS 2: POLITY (Separation of Power and Role of Judiciary)

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# Onus on legislature to make marital rape punishable: SC

**Bench says though it recognises the individual autonomy of married women, both the Indian Penal Code and the Bharatiya Nyaya Sanhita exempt marital rape from being considered a crime**

**Krishnadas Rajagopal**
NEW DELHI

The Supreme Court on Wednesday guaranteed safety and security to sexually abused married women, but questioned if courts can direct rape prosecutions against husbands when the penal law exempts marital rape from criminal liability.

A three-judge Bench headed by Chief Justice of India (CJI) Surya Kant made a point that though it recognised the individual autonomy of married women, the second exception to Section 375 of the Indian Penal Code (IPC) states that "sexual intercourse or sexual acts by a man with his own wife, the wife not being under 15 years of age, is not rape".

Section 63 of the Bharatiya Nyaya Sanhita, which replaced the IPC in 2023, has carried forward the exemption given to marital rape under Section 375 though statutorily raising the age-threshold of the

> A person in a matrimony subjected to involuntary sexual intercourse is definitely a victim... The question before us is whether the State defines it as 'rape' or not
>
> **JUSTICE JOYMALYA BAGCHI**
> Supreme Court judge

"This is the law as it stands, rightly or wrongly. It is a penal law. Before a constitutional court renders a verdict that the exception is unreasonable or manifestly arbitrary, can we permit a prosecution on that score? Is it within the domain of a prosecutor to prosecute a person when there is a clear exemption under Section 375 or Section 63," Justice Joymalya Bagchi questioned.

The primary case before the Bench is an appeal filed against a 2022 decision of the Karnataka High Court, which held that a husband could be charged with rape if he had forced himself on his wife. The High Court

J.S. Verma Committee report of 2013 which had found the exception regressive. The High Court Bench had observed that "a man is a man; an act is an act; rape is a rape, be it performed by a man the 'husband' on the woman 'wife'". It had noted that "no exception under law can be so absolute that it becomes a licence for the commission of a crime against society".

But the Supreme Court questioned the High Court's logic on Wednesday. "Can a court order prosecution until the constitutional validity of the exception is examined and, if needs be, declared

is the law right now, constitutional or otherwise," Justice Bagchi debated.

**Definition of rape**

While Justice Bagchi agreed that a "person in a matrimony subjected to involuntary sexual intercourse is definitely a victim", he said "the question before us is whether the State defines it as 'rape' or not".

The court mooted that it may be for the legislature to decide if an act should be made a crime.

Senior advocate Indira Jaising, who appeared for the wife in the Karnataka case, said there was enough elasticity to interpret the present law and justify the High Court's decision to order prosecution for rape. She also noted that the age of consent in Section 63 has been raised from 16 to 18 years.

Solicitor General Tushar Mehta said the exception for marital rape must continue until the top court took a final call on its

GS 3: SCIENCE AND TECHNOLOGY THE HINDU

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# Dark matter could form tiny black holes inside stars: study

The Hindu Bureau
GUWAHATI

Dark matter, the unseen substance that makes up most of the universe's matter, could play a more dramatic role than previously thought.

A new study suggests that heavy dark matter particles trapped inside a dense star could accumulate at its core, collapse into a tiny black hole roughly the mass of a loaded semi-truck, and gradually transform the entire star into a black hole.

The authors of the study, published in the latest issue of the *Physical Review D*, are H.A. Adarsha and Chandrachur Chakraborty of the Manipal Centre for Natural Sciences at Manipal Academy of Higher Education, and Sudip Bhattacharyya of Mumbai's Tata Institute of Fundamental Research (TIFR).

**Two stellar objects**

Their study focuses on two extremely dense types of stellar objects – millisecond pulsars and white dwarfs.

An extremely dense star is essentially a dead star that has run out of nuclear fuel. A millisecond pulsar is a rapidly rotating neutron star that emits regular beams of electromagnetic radiation at intervals of less than 10 milliseconds, while a white dwarf is a hot, dense stellar remnant.

**A new study suggests that heavy dark matter particles trapped inside a dense star could accumulate at its core, collapse into a tiny black hole roughly the mass of a loaded semi-truck, and gradually transform the entire star into a black hole**

A black hole would evaporate rapidly if left on its own, but the researchers' calculations through a new mathematical framework showed that a continuous supply of dark matter could keep such tiny black holes growing inside dense stars.

The researchers used a conservative age of about 1 billion years for millisecond pulsars and about 10 billion years for white dwarfs to place limits on the possible properties of ultra-heavy dark matter.

"Hawking radiation causes black holes to lose mass, with smaller black holes evaporating faster. However, some hypothetical ultra-heavy dark matter particles could be captured by dense stellar remnants such as millisecond pulsars and white dwarfs, collect at their centres, and eventually collapse into a tiny black hole," the researchers said.

**Consumption of dark matter**

They calculated what would happen next by considering a black hole's consumption of stellar material, continued feeding by dark matter, Hawking evaporation, and quantum effects important at extremely small scales.

"We find that continued dark matter feeding can allow black holes born with masses as low as about 40 tonnes to overcome evaporation and eventually consume their host stars. Because many millisecond pulsars and white dwarfs have survived for billions of years, dark matter capable of destroying them sooner can be ruled out," the study said.

"These ancient stars, therefore, provide natural laboratories for probing forms of ultra-heavy dark matter that are difficult to test on earth," they found.

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## Turning economic cooperation into shared prosperity

At a time when the international landscape is becoming more complex and uncertain, the case for meaningful international cooperation has rarely been stronger. Its value must increasingly be measured by its ability to deliver stability, resilience and shared prosperity.

For the United Arab Emirates (UAE), this is central to how it approaches BRICS. Since becoming a full member in January 2024, its engagement has been guided by a straightforward principle: economic cooperation should create tangible opportunities for countries, businesses and people.

**A diversity that creates opportunities**

The strength of BRICS lies partly in its diversity. Its members bring different economic structures, resources, capabilities and development experiences – from major producers and consumers to sources of capital, investment destinations, energy exporters and manufacturing centres.

These differences create opportunities for complementarity – connecting markets, capital, capabilities and ideas in ways that can benefit its members, and by extension the Global South.

The UAE's participation in BRICS is part of its broader commitment to multilateralism, constructive dialogue and diversified international partnerships. It seeks to build bridges between economies, institutions and regions. It supports an open international system that advances peace, stability, sustainable development and shared prosperity.

For the UAE, BRICS' ultimate value lies in implementation. Dialogue should translate into easier trade, stronger investment flows, more resilient supply chains, better connectivity and greater opportunities for businesses.

India's 2026 BRICS Chairship, centered on resilience, innovation, cooperation and sustainability, provides a timely framework for this agenda. At a time when trade restrictions, supply-chain disruptions and uncertainty are increasing costs for businesses and consumers, the response should not be to retreat from global economic integration, but to make it more resilient and inclusive.

BRICS stands out when cooperation can produce tangible benefits: through strengthening the multilateral trading system, facilitating trade and investment, improving connectivity, supporting resilient global value chains, and promoting sustainable development.

**Saeed bin Mubarak Al Hajeri**

Minister of State at the United Arab Emirates Ministry of Foreign Affairs

The United Arab Emirates promotes open, resilient economic cooperation through its engagement with BRICS

Development finance is also part of this equation. The New Development Bank (NDB) has approved more than $40 billion in financing since its establishment, supporting infrastructure and sustainable development across its member countries. The UAE's active engagement with the NDB long before joining BRICS reflects its wider commitment to mobilising capital towards productive investment and long-term growth.

The UAE's own economic partnership with India demonstrates what practical connectivity can achieve.

**On UAE-India ties, the UAE's advantages**

The UAE-India Comprehensive Economic Partnership Agreement has helped create a more enabling environment for trade and investment between two highly complementary economies. In 2025, non-oil bilateral trade grew by 17% to exceed $76 billion and the UAE and India have set the ambition of increasing bilateral trade to $200 billion by 2032.

But the strength of the UAE-India relationship extends beyond trade. It is reinforced by investment, innovation, education, tourism and long-standing connections between their businesses, institutions and people.

This experience points to a broader lesson for BRICS: the strongest economic partnerships are built not only through agreements between governments, but through lasting connections across societies – creating the trust, opportunity, and resilience that allow commercial ties to deepen over time.

Economic connectivity is strengthened when businesses, entrepreneurs, investors, and institutions develop greater familiarity with one another. It is reinforced through education, research, tourism, cultural exchange and engagement of younger generations, which help build the trust and networks on which longer-term economic relationships grow.

The opportunity for BRICS is therefore to deepen the quality of connectivity among its members – connecting not only economies but also institutions, ideas and people.

The UAE is particularly well positioned to contribute because connectivity lies at the heart of its own economic model.

Non-oil sectors accounted for almost 79% of GDP in 2025, supported by world-class infrastructure, trusted financial institutions, advanced logistics and energy capabilities, and an open investment environment that enables businesses to scale-upwards and outwards.

The UAE's ports, airports and logistics networks connect markets across Asia, Africa, Europe and beyond. Its financial centres connect international capital with opportunities across the region, while, its universities, research institutions and innovation ecosystem connect talent, knowledge and ideas.

With sovereign wealth assets exceeding $2.9 trillion, and 38 concluded Comprehensive Economic Partnership Agreements, the UAE has built the capacity to connect capital, markets and economies at scale.

For the UAE, connectivity is not simply about moving goods from one market to another. It is about creating the conditions in which capital, knowledge, technology, talent and people can interact and create new opportunities.

The UAE's approach is not to build economic cooperation around division, but around connectivity.

**The path under India's leadership**

As India leads BRICS through 2026, there is an opportunity to move further toward delivery: building resilience without closing markets, supporting innovation while widening opportunity, and strengthening connections among the businesses, institutions and people of the UAE and India. The UAE also looks ahead with confidence to China's BRICS Chairship in 2027, where it hopes to build on the momentum of India's leadership and carry forward the same energy of openness, connectivity and practical cooperation.

Ultimately, the success of BRICS cooperation will be measured by the opportunities it creates. That is the approach that the UAE brings to BRICS. As India hosts the 2026 Summit (September 12-13), the UAE stands ready to continue the work that translates cooperation into ways that support shared prosperity.

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# Trade between BRICS countries shows marked increase

**The rise in intra-BRICS trade strengthens the case for a cross-border payments system**

DATA POINT

Nitika Francis
Gandla Sneha

Reducing global dependence on the U.S. dollar is expected to be a key part of the discussions in the 18th BRICS Summit, chaired by India, happening in New Delhi on September 12 and 13, 2026. Finance ministries' and central bank governors from BRICS countries met in August to discuss the facilitation of cross-border payments and strengthening of national currencies.

The BRICS bloc with its 10 member countries – Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran, and the UAE – has grown in strength in its objective of advancing trade and diplomatic relations within the Global South, which makes cross-border payments desirable.

Currently, making payments across countries requires a string of transactions via correspondent banks, which hold accounts with each other. When two countries do not have such correspondent banks, they route their payments through international banks, converting the currency of the sender country to a dominant currency such as dollars, and then converting the dollars to the currency of the receiving country. This process, besides being slow at times, comes with the cost of foreign exchange margins and the fee charged by the intermediaries. Seeing that the BRICS comprises many developing economies, this can be among the many impediments to trade opportunities.

Trade data shows that merchandise exports by BRICS countries made up about one-fourth of all global exports in 2024 **(Chart 1)**. The BRICS countries have all drastically increased their exports over the years, with China touching $500 billion in 2024. Other members such as Brazil, India, Indonesia, Russia, and the UAE also recorded large figures between $80 and $180 billion. In addition to this, their trade amongst each other has also increased. **Chart 2** shows that as of 2024, all members of BRICS, except China, received more than 30% of imports from other members.

Iran depends on BRICS for more than 65% of its imports, and Ethiopia nearly 45%. Intra-BRICS import dependency could be on the rise due to the heterogeneity of goods available among its members, as noted in a report by the United Nations Conference on Trade and Development.

Concurrently, export dependency within the bloc has also risen. In the last decade, five members (Russia, China, the UAE, Brazil, and Indonesia) have doubled and even quadrupled their exports to members of the bloc. However, China has consistently shown the lowest dependency on intra-BRICS exports due to its diversified export market **(Chart 3)**.

Russia saw a rapid increase in its export dependency between 2020 and 2023, in the middle of its invasion of Ukraine, during which countries such as India imported its fuel. The country saw a decline in export dependence in 2024.

It was under Russia's chairmanship in 2024 that the BRICS argued against the dominance of the U.S. dollar. Russia was hit directly by the dollar monopoly in 2022; due to sanctions from the U.S., Russian banks were cut off from the Society for Worldwide Interbank Financial Technologies (SWIFT) which enables institutions to settle amounts. Hence, international transactions proved difficult for the Russia.

While the U.S. is the largest economy in the world, the BRICS bloc does not fall far behind, as China, India, and Russia are in the top 10 in terms of Gross Domestic Product (current prices) **(Table 1)**. Whether this collective economic strength can challenge the dominance of the dollar is to be seen in the coming days.

## Dollar detour

The data for the charts were sourced from report by the United Nations Conference on Trade and Development titled "Two Decades of Intra-BRICS Trade: Trends, Patterns and Policies" and the International Monetary Fund (IMF)

**CHART 1:** In 2025, exports from BRICS countries made up about 25% of global merchandise exports. BRICS countries include Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran, and the UAE. Values in $ trillion

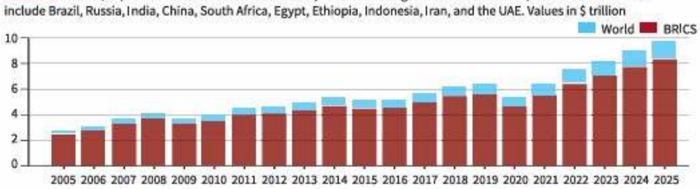



**CHART 2:** All BRICS countries have increased their dependency on imports from other nations from the bloc. Values in %

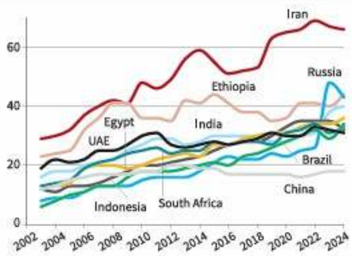



**CHART 3:** The exports from BRICS countries as a share of each country's total exports. Values in %

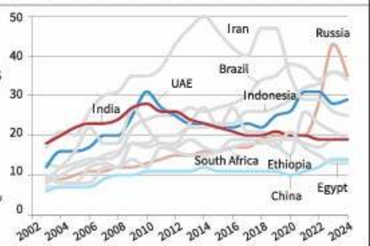



**TABLE 1:** Country-wise size and ranking of Gross Domestic Product of 2025 (current prices). Values are estimated by IMF

| Country | GDP, current prices (billions of $) | Rank |
|---|---|---|
| China | 19,626.247 | 2 |
| India | 3,916.312 | 7 |
| Russian Federation | 2,587.938 | 9 |
| Brazil | 2,279.918 | 12 |
| Indonesia | 1,445.642 | 18 |
| United Arab Emirates | 571.643 | 32 |
| South Africa | 427.141 | 43 |
| Iran | 371.196 | 46 |
| Egypt | 364.64 | 47 |
| Ethiopia | 109.109 | 74 |

"Collectively, the 10 member countries account for 27 per cent of world output, 24 per cent of merchandise exports, and 22 per cent of FDI inflow by 2024" - *Two Decades of Intra-BRICS Trade: Trends, Patterns and Policies* report

Gandla Sneha is interning with The Hindu

# GS 3: SCIENCE AND TECHNOLOGY

## THE HINDU PAGE: 10

# Did OpenAI solve Navier-Stokes problem?

OpenAI's claim of Navier-Stokes breakthrough has sparked controversy after Tristan Buckmaster alleged that its internal model arrived at the exact approach he and Levent Alpöge had been pursuing; questions remain over whether OpenAI trained on private Codex data, the proof's validity and who deserves credit

FULL CONTEXT

Vasudevan Mukunth

**The story so far:**

In what is quickly becoming an explosive controversy in mathematics, a potential solution to one of the field's greatest open questions has been overshadowed by allegations of espionage and unethical academic conduct. Over the last few days, the mathematical community has been rocked by claims that OpenAI leveraged its enormous computing power – and potentially the private user data of academic researchers – to scoop a solution to the Navier-Stokes equations problem.

**What is the Navier-Stokes problem?**

The Navier-Stokes equations describe the motion of viscous fluids like water and air, and they have frustrated mathematicians and physicists for more than two centuries.

As OpenAI wrote on its website: "The Navier-Stokes equations use Newton's second law of motion (F = m x a) to describe how fluids move. Importantly, they treat a fluid as a continuous medium rather than tracking individual molecules. These equations are used for aircraft design, weather forecasting, and the study of blood flow."

The Clay Mathematics Institute in New York lists a problem about the equations as one of the seven Millennium Prize Problems. That is, anyone who can prove whether the equations always have smooth, predictable solutions or whether the equations can 'blow up' – meaning the mathematical solutions reach infinity in finite time – will win $1 million and considerable prestige in the mathematics community.

**What is a forcing function?**

The Millennium Prize problem statement, authored by U.S. mathematician Charles Fefferman, offers a few avenues for a valid proof. Options A and B deal with unforced equations, while Options C and D allow for a solution that includes an external forcing function.

A forcing function is an external influence that adds momentum to the fluid, e.g., you dip your spoon into a bowl of water and stir it. A forced blow-up would be when you keep stirring the fluid harder and harder until the equations predict the flow becomes infinitely violent in a finite amount of time – as if you were stirring at nearly the speed of light.

For such a blow-up to qualify for the Millennium Prize under Options C and D, the force causing the blow-up can't suddenly appear/disappear or change abruptly from one place or time to another. It must obey the usual laws of physics.

Over the last year, New York University mathematician Tristan Buckmaster and Anthropic researcher Levent Alpöge have been using AI models to use a technique developed by Spanish mathematicians Diego Córdoba and Luis Martínez-Zoroa to show that forced blow-ups cause the Navier-Stokes equations to become insensible in finite time.

This route is a niche vector of attack; mathematicians agree it is not possible to arrive at by feeding the problem to an AI chatbot. This detail matters to what followed.

**How did OpenAI get involved?**

Buckmaster and Alpöge made a breakthrough on August 15. A week later, the duo had their proofs – heavily generated by models like Anthropic's Claude and OpenAI's GPT-5.6 Sol – checked by a computer to make sure the mathematics were correct.

However, the raw output from the AI was practically unreadable. Buckmaster described one initial proof as "the most horrendous I have ever read". So Alpöge and Buckmaster spent weeks working around the clock to translate the AI output into a readable paper.

But last week, a rumor began circulating that Anthropic had solved a major open problem in mathematics. On September 3, after hearing OpenAI was investigating the rumors, Buckmaster emailed a prominent mathematician at OpenAI. This information comes from a statement that Buckmaster published on his university webpage.

Buckmaster said he clarified that his work with Alpöge was in a personal capacity and did not represent an institutional effort by Anthropic and that the duo planned to publish its results once it had finished polishing the manuscript. The (unnamed) interlocutor at OpenAI replied expressing excitement.

But on September 4, OpenAI requested a same-day meeting with Buckmaster, which Buckmaster deferred to the following week (i.e., the current week). Two days later, OpenAI urgently requested a meeting, so Buckmaster said he joined a call with OpenAI computer scientist Sebastien Bubeck and another representative. Alpöge did not attend the call.

During this call, Buckmaster said Bubeck dropped a bombshell: an internal OpenAI model had produced a proof of finite-time blow-up for the forced Navier-Stokes equations. When Buckmaster pressed for details, the OpenAI team revealed their solution was exactly "Existence of forced blowup in R3 and T3, with the forcing function is smooth Option C and D in Fefferman" – for Buckmaster, the exact mathematical route he and Alpöge had been pursuing.

Buckmaster also wrote that he and Alpöge had been logging their work on OpenAI Codex, a tool to translate natural language prompts into code, for months.

At this point, Buckmaster refused to cooperate with OpenAI and rushed to publish his and Alpöge's results, plus his public statement.

OpenAI subsequently held a press briefing in which it claimed 10,000 AI agents had cracked the problem in an 88-hour marathon that had cost the company millions of dollars.

**What is the data-access issue?**

Buckmaster's public statement has already triggered scrutiny of OpenAI's corporate practices. When it claimed to have solved the same formulation of the problem Buckmaster and Alpöge had been working on, Buckmaster asked how the AI model had arrived there. On the September 6 call, Bubeck allegedly admitted an entire team had been assigned to crack the problem.

Further, Buckmaster said he had been inputting all of his and Alpöge's drafts into Codex over a year. So when Buckmaster asked if the internal OpenAI model had been trained on or had access to his private Codex sessions, OpenAI said the model "did not look up user data". But when Buckmaster pressed on whether his data had been used to train the model that worked on the problem, OpenAI didn't answer.

According to Buckmaster, Bubeck also offered him two unethical proposals. In the first, Buckmaster would post his significant result and OpenAI would post their Navier-Stokes result the following day. The second was that Buckmaster would write a solo paper presenting the Navier-Stokes result and acknowledge the internal OpenAI model.

Bubeck reportedly asserted on the call that he wanted Alpöge removed from authorship because Alpöge is an employee of Anthropic, OpenAI's rival.

Buckmaster said he refused both offers and threatened to go public with the conversation, whereupon Bubeck allegedly responded: "Why would you ruin your career?" and "If you don't want me to be nice, then I don't have to be nice".

Bubeck has since publicly called the allegations against him "false and inflammatory".

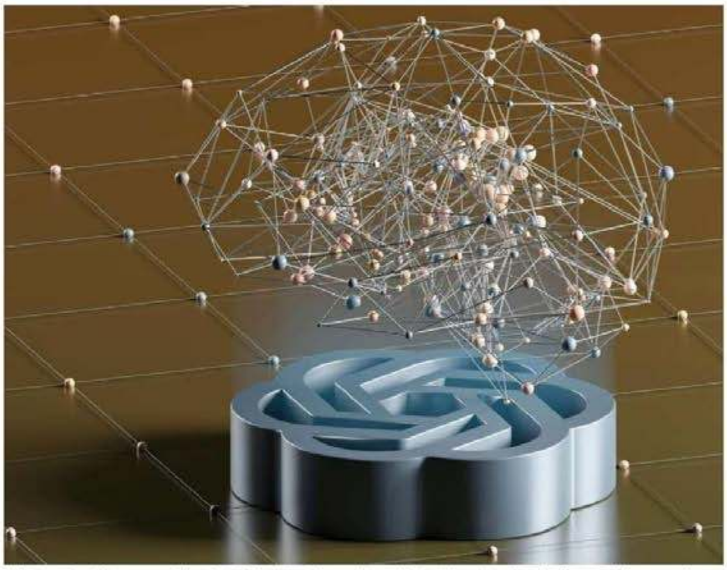
**What questions remain?**

1. Did OpenAI actually solve the problem? While OpenAI has said its agents reached a solution in 88 hours, it is unclear who, if any, outside the company has seen the claimed proof. Since Buckmaster described the AI-generated paper as "slop", it is also unknown whether OpenAI's internal model actually produced a rigorous proof or a convoluted approximation.

2. Did OpenAI breach user privacy? The silence regarding whether OpenAI trained its internal model on Buckmaster's private Codex logs has been deafening.

3. Who deserves the credit? The AI agents? OpenAI the corporation? Buckmaster and Alpöge? Or Diego Córdoba and Luis Martínez-Zoroa? Indeed, Buckmaster wrote in his statement he believes "Luis Martínez-Zoroa deserves a Fields Medal".

Just before the controversy broke out, Fields Medal winner Terence Tao had published a series of notes about why a 'human mathematics' remains relevant in the age of AI. As he wrote: "The point remains that there is a substantial opportunity cost in converting a historically productive and motivating problem ... into a mere viral social media post advertising some benchmark progress, rather than actually advancing the field and developing the next generation of both problems to ask and people to work on them."



While OpenAI has said its agents reached a solution for the Navier-Stokes regularity problem in 88 hours, it is unclear who, if any, outside the company has seen the claimed 100-page proof. GROWTIKA/UNSPLASH

**THE GIST**

- The Navier-Stokes equations describe fluid motion and form one of the seven Millennium Prize Problems, with a $1 million prize for a valid solution
- Buckmaster and Alpöge used AI models to develop a proof of finite-time blow-up involving a forcing function, then worked to turn the AI-generated output into a readable paper
- OpenAI later said 10,000 AI agents had solved the problem in an 88-hour effort, while Buckmaster alleged that OpenAI made questionable proposals over publication and authorship

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## At BRICS, India's task is to keep the Ukraine peace process moving

AJAY BISARIA

WHEN PRIME Minister Narendra Modi met President Vladimir Putin in Bishkek on the sidelines of the Shanghai Cooperation Organisation, he publicly repeated the counsel he has long offered Russia's leader: End the seemingly endless war in Ukraine. The message was timely. Over the weekend, US President Donald Trump's envoys for everything, Steve Witkoff and Jared Kushner, travelled to Moscow and Kyiv, with a similar message, bolstered by fresh peace proposals. Even as the guns briefly fell silent in honour of the mediators, their visit reintroduced a sliver of hope into a conflict that, until days ago, saw only continuous escalation. After more than four-and-a-half years, the war may at last be edging towards its endgame, or at least the negotiation of one.

For six months the American peace initiative had lost momentum, its oxygen consumed by another war entirely. Washington's attention had been absorbed by Iran, and Ukraine boiled while the US got dragged in as a belligerent in the West Asian theatre. That Trump has now returned to the Ukraine file is confirmed by his follow-up call to Putin on Tuesday, asking for a swift end to the war to allow US-Russia ties to be restored. It signals that the Alaska process of 2025, which produced the Anchorage summit, the successive plans and counter-plans, and the rounds at Geneva and Abu Dhabi, had only paused. A peace plan, or at least a ceasefire, may yet materialise through a trilateral featuring Trump in the same room as Putin and Ukrainian President Volodymyr Zelenskyy.

Of course, yawning gaps in positions remain to be bridged on territory and security guarantees. Accounts circulating earlier had described Putin reducing Russia's demands to a "3+2" formula: Crimea, Donetsk and Luhansk, with Zaporizhzhia and Kherson beyond. Russia holds Crimea and insists on the whole of the Donbas, including ground it has not taken. It has reportedly offered to let Kyiv keep the parts of Kherson and Zaporizhzhia it could not capture, against an easing of sanctions. That was, in essence, the bargain that collapsed when — as Secretary of State Marco Rubio admitted — Ukraine would not agree. For the moment, Washington can help keep the parties in the room; it cannot make Kyiv cede the Donbas, nor make Moscow accept less than it believes it has won.

Perhaps not coincidentally, days before the American envoys set out, External Affairs Minister S Jaishankar had shuttled along the same route, from Moscow to Kyiv, urging dialogue and diplomacy, and perhaps carrying a message from Moscow to Kyiv. Rather than propose a branded peace framework, as China, Switzerland and Turkey each did, only to see their efforts stall, India effectively worked inside the existing US peace track, amplifying the voice of the Global South, offering to help only if both belligerents asked, and no doubt keeping the Americans informed. India's gambit would have served as a nudge to all parties. The message would have been a reminder to the principal mediator and to both warring sides that the alternative to talking is only more killing and more punishment to the global economy.

> The pursuit of that peace cannot be the monopoly of Washington, Moscow and Brussels. The Global South, much of it distant from the front and all of it exposed to the fallout, has both an interest and a standing to press for a settlement

Here lies the argument too often lost in big-power choreography. The war in Ukraine is not the private business of the belligerents and their patrons. Its costs have radiated far beyond the theatre: In the price of energy and the security of food and fertilisers, in inflation and sovereign debt, and in the fraying of the multilateral institutions on which smaller states depend. Nations with no soldiers near the Dnieper have paid a heavy price for this war, and that gives them a legitimate stake in its ending. Peace in Ukraine is, in this sense, a global public good.

It follows that the pursuit of that peace cannot be the monopoly of Washington, Moscow and Brussels. The Global South, much of it distant from the front and all of it exposed to the fallout, has both an interest and a standing to press for a settlement. India, as this year's BRICS chair and among the more credible voices of that constituency, is well placed to carry the message. Its nudge is therefore an act of representation. Far from presuming a role, India speaks for a constituency that is watching, is affected, and wants the guns silenced.

On energy, India has held a line that speaks for many such states: That cutting oil imports will not stop the war, that its citizens' energy security is non-negotiable, and that sanctions for their own sake are no substitute for diplomacy. More broadly, all global conflict threatens India's trajectory of growth that will give it the status of a developed economy in the next two decades. Wars, distant or near, can derail India from this trajectory.

The Ukraine settlement, when it comes, will be authored in Washington, Moscow and Kyiv, and, on current indications, sealed in a trilateral involving Trump, Putin and Zelenskyy. India will not be in that room. Its own test comes this weekend, as host of the BRICS summit in New Delhi, which will seat one belligerent from each of today's wars, Russia from Europe and Iran from West Asia, but neither the United States nor any other mediator. India's immediate task will be to steer a summit declaration that reflects the reality of these conflicts and does not merely echo the case of any single party in them, and a collective call for peace from a world that has paid for these wars without a say in them. That is the most a BRICS chair can do.

The endless wars will end at the table. India's part is to keep nudging all parties in that direction and to keep insisting there be a table.

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# A special relationship with Europe is linked to our strategic autonomy

**THAROORTHINK**

BY SHASHI THAROOR

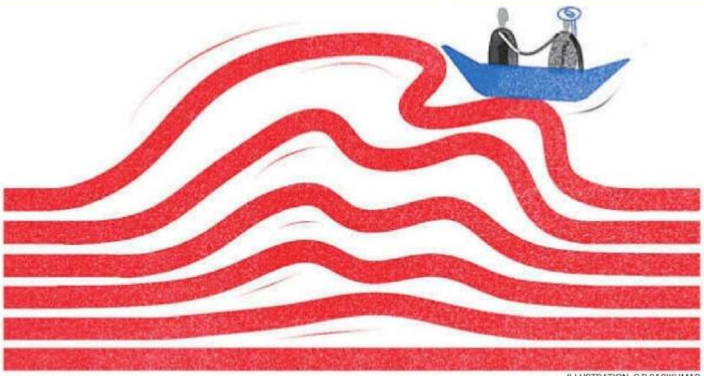

ILLUSTRATION: C R SASIKUMAR

THE GEOPOLITICAL landscape of the mid-2020s has presented New Delhi with a stark and inescapable reality: The structural predictability that once underpinned India's strategic convergence with the US has given way to an era of acute volatility. While the bilateral relationship with Washington remains vital, the escalating turbulence of American domestic politics and the erratic swings of its trade and foreign policy have introduced a dangerous element of uncertainty into the partnership. From sudden tariff threats and aggressive protectionist posturing to intense scrutiny over India's independent energy choices and traditional ties, Washington has demonstrated that its strategic commitments are increasingly unpredictable. In this fragmented global order, New Delhi can no longer afford to anchor its long-term economic and security calculus to a single, mercurial superpower. To preserve the strategic autonomy that has long been the North Star of Indian foreign policy, India must aggressively pursue multi-alignment, cultivating alternative channels of serious cooperation.

While New Delhi has deftly expanded its ties with highly capable regional middle powers — deepening maritime coordination with Japan and Australia through the Quad, enhancing technological and financial integration with Singapore, and anchoring energy security within the Gulf states — there is one geopolitical space where Indian diplomacy stands to secure its most transformative gains: The European Union. Conversations at last week's European Forum in Alpbach have convinced me that those who earlier dismissed the EU as a bureaucratic, inward-looking economic bloc, detached from India's hard realities, are wrong. Europe has now emerged as a reliable, structurally steady partner for a rising India.

The landmark conclusion of negotiations for the India-EU Free Trade Agreement on January 27, justly hailed as the "mother of all deals", signals an unprecedented era of economic and strategic alignment between two of the world's largest democratic marketplaces. The timing of this economic breakthrough is deeply deliberate. Concluded at Hyderabad House against the backdrop of the 16th India-EU Summit, the agreement represents a structural commitment encompassing a population of 2 billion consumers and roughly a quarter of global GDP. For India, this trade pact serves as an invaluable macroeconomic buffer, insulating our domestic industries from global protectionist shocks and securing privileged access to a lucrative, high-value market. For Europe, stung by the weaponisation of economic dependencies by China and increasingly wary of its state-led economic distortions, the agreement is the crown jewel of its "China Plus One" diversification strategy. By slashing or eliminating tariffs on over 96 per cent of traded goods and establishing stable, transparent rules for services, the digital economy, and high-tech collaboration, the FTA establishes a permanent economic anchor between the two peninsulas of the Eurasian landmass.

Yet, the true significance of this evolving relationship extends far beyond the realm of balance sheets and tariff calculations. The strategic affinity between India and Europe is rooted in a shared commitment to a resilient, rules-based multipolar order, a vision that is increasingly threatened by both Chinese expansionism and American unilateralism. In an extraordinary departure from diplomatic protocol that captured global attention, European Commission President Ursula von der Leyen and European Council President Antonio Costa travelled together to New Delhi in January to be the chief guests for India's 77th Republic Day celebrations. The historic sight of a joint European military and naval contingent marching down Kartavya Path was a potent visual manifesto: Europe no longer views the Indo-Pacific through a purely commercial lens, and India no longer views Europe as a strategic afterthought.

**What Europe lacks in singular superpower muscle, it more than compensates for in structural stability, technological prowess, and diplomatic predictability**

This symbolic evolution was matched by institutional substance. Alongside the trade pact, the two sides executed a comprehensive Security and Defence Partnership Agreement, dramatically expanding institutionalised cooperation across maritime and cyber-security, counter-terrorism, and emerging frontiers like artificial intelligence. Through this mechanism, India gains critical access to Europe's €150 billion Security Action for Europe initiative, paving the way for joint defence industrial production, co-development, and the transfer of sophisticated, state-of-the-art military technologies. For an Indian military establishment actively seeking to diversify its hardware procurement and reduce its reliance on legacy suppliers while building up its domestic manufacturing capability, Europe offers a sophisticated, highly reliable alternative.

It is crucial to recognise that Europe is not, and cannot be, a like-for-like alternative to the US in terms of raw military projection or global financial hegemony. However, what Europe lacks in singular superpower muscle, it more than compensates for in structural stability, technological prowess, and diplomatic predictability. Unlike a Washington prone to sudden shifts in executive whim, European foreign policy is anchored in institutional consensus and long-term strategic frameworks. Brussels and New Delhi share identical anxieties about Chinese coercion, particularly the creeping militarisation of critical maritime sea lanes and the predatory economics of regional connectivity projects. By building a robust, independent pillar of security cooperation with European powers (both collectively through the EU and bilaterally with key capitals like Paris and Berlin), India can plug critical operational gaps in the Indian Ocean while ensuring that its defence needs are supported by reliable, democratic partners.

Ultimately, the construction of a new special relationship with Europe represents the modern fulfilment of India's traditional doctrine of strategic autonomy. In the complex geometry of 21st-century geopolitics, true autonomy is not achieved through isolation or passive non-alignment, but through the active, energetic cultivation of overlapping, high-value partnerships. By anchoring its economic future to the India-EU FTA and its security architecture to a deep defence partnership with Brussels, New Delhi successfully constructs a double-sided hedge. It creates a powerful deterrent against Chinese assertiveness in its neighbourhood while insulating itself from disruptive, unpredictable shifts in American global engagement. As the "mother of all deals" moves toward formal ratification and implementation, India and Europe are proving that in a world defined by turbulence, the alliance of two great civilisational democracies can become an anchor of global stability.

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