The MEV Letter

is a weekly collection of papers, articles and resources related to MEV. The intention of this letter is to provide a comprehensive summary of the latest research, discussions, and developments in the space, with links for further reading.

Papers & Articles

- Introducing BuilderNet by Flashbots presents BuilderNet, a decentralized block building network designed to neutralize exclusive orderflow deals, enhance Ethereum's censorship resistance, and accelerate decentralization across rollups and apps.
- Forum post by Flashbots
- Thread by @shea
- Thread by @bert
- Thread by @Hasu
- Thread by Nethermind
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- Thread by @bert
- Thread by @Hasu
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- Introducing contender by @brock outlines the pre-alpha of Contender, a benchmarking tool for EL clients designed to simulate realistic, repeatable transaction scenarios to test node performance.
- Thread by @brock
- Thread by @brock
- Portait of a TEE: applications and identity by @mateusz examine methods for identifying TEE instances and applications, emphasizing the limitations of existing attestation-based methods and the potential role of smart contracts.
- Resonance: Transaction Fees for Heterogeneous Computation by Maryam Bahrani and Naveen Durvasula presents a transaction fee mechanism designed to efficiently address heterogeneous computational demands between users and nodes.
- Resonance: A Market Mechanism for Heterogeneous Computation by Naveen Durvasula and Maryam Bahrani
- The Resonance Mechanism and its Properties by Naveen Durvasula and Maryam Bahrani
- Thread by Naveen Durvasula
- Thread by Maryam Bahrani
- Thread by Emperor
- Thread by Ritual
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- The Resonance Mechanism and its Properties by Naveen Durvasula and Maryam Bahrani
- Thread by Naveen Durvasula
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- Thread by Emperor
- Thread by Ritual
- The 5 Levels of Secure Hardware by Georgios Konstantopoulos defines five levels of secure hardware, where each level enables more use cases, better performance, and higher security.

- Thread by Georgios Konstantopoulos
- Thread by Georgios Konstantopoulos
- Analysing Expected Proposer Revenue from Preconfirmations by Conor McMenamin presents Dependent Sub-Slot Auctions (DSSAs), a preconfirmation protocol that increases proposer revenue even without preconfirmation tips.
- Thread by Conor McMenamin
- Thread by Conor McMenamin
- Dynamic Finalization Considering 51% Attacks by Titania Research identifies risks associated with PoS Ethereum, especially 51% attacks, and proposes new detection and delay mechanisms to improve network resilience.
- Transport privacy exploration of the Validator-Relayer Builder API by QYu demonstrates transport-level metadata leaks by MEV-Boost relays that can be exploited to de-anonymize validators and attack the network.
- Block Arrivals, Home Stakers & Bumping the blob count by Sam Calder-Mason analyzes how increasing Ethereum's blob count via EIP-7691 would impact bandwidth-limited nodes and overall network performance.
- Thread by Sam Calder-Mason
- Thread by parithosh
- Thread by Sam Calder-Mason
- Thread by parithosh
- The case for EIP-7732 in Fusaka by Potuz outlines the rationale for adopting EIP-7732 in Fusaka by detailing its benefits for network latency, bandwidth, and stability.
- In-Protocol Transaction Ordering by Matthew Keil presents a refinement to FOCIL that addresses transaction selection, ordering, and rewards redistribution by incorporating deterministic ordering.
- Secret Sharing with Snitching: Addressing Shareholder Collusion in Threshold Cryptography by Shutter explores how Secret Sharing with Snitching enhances the security of threshold cryptography by deterring and detecting collusion through fraud proofs.
- Hoo Hoo! The First Mainnet Encrypted Mempool by EigenPhi examines the use of encrypted mempools, such as Shutter's implementation on Gnosis Chain, as a way to mitigate MEV and improve censorship resistance.
- Preconfirmation (feat. Taiko): Make Ethereum Fast for the First Time! by Ingeun Kim details how Taiko and other rollups can use based preconfirmation to improve transaction finality and enhance interoperability.
- Thread by Four Pillars
- Thread by Four Pillars
- Introducing Plasma: A Reference Implementation of a Sandwich-Resistant AMM by Ellipsis Labs announces the release of a sandwich-resistant AMM reference implementation designed to mitigate sandwich attacks.
- Same Slot vs. Next Slot Inclusion List by Terence Tsao evaluates the tradeoffs between Same-Slot and Next-Slot inclusion lists in the context of EIP-7547 and EIP-7805.
- MEV isn't as competitive as you think by mteam explores the competitive differences between short tail and long tail MEV.

Posts & Threads

- PBS Foundation published a thread to highlight content from Devcon SEA related to protocols, MEV, and auction design.
- Gideon published a series of posts diving into topics related to the intersection of TEEs and blockchains:
- TEEs and blockchains
- BuilderNet
- Secure hardware
- TEEs and blockchains

- BuilderNet
- Secure hardware
- 0xprincess published a thread announcing TOOL by NuConstruct that's using TEEs to process orderflow privately and provide 1-second sub-slots with execution guarantees.
- CoW DAO published a thread detailing a multi-block MEV attack that exploited CoW Protocol's OrderBook API, and steps being taken to mitigate the information leakage.
- libevm published a thread explaining how searchers exploit logs_bloom to execute blind sandwich attacks, bypassing protections such as MetaMask's smart transaction feature.
- Doug Colkitt published a thread detailing how sniper bots are exploiting Clanker's UniV3 NFT deployment on Base to preemptively snipe new pools causing excessive transaction spam, and suggests ways to resolve the issue.
- bolt published a thread announcing that bolt has been deployed on the Holešky testnet to enable permissionless proposer commitments.
- Jarrod Watts published a thread describing the current state of PBS and how EIP-7805 is designed to improve censorship resistance.
- Anders Elowsson published a thread to illustrate how an automated gradual reduction down to a new reward curve over a period of 1-2 years could look like.
- 0age published a thread detailing The Compact by Uniswap designed for reusable resource locks to address inefficiencies in cross-chain swaps.
- Titan Relay published a thread outlining new access requirements for the TopBid websocket stream in Titan Relay.

Talks & Discussions

- Additional recordings from Devcon SEA hosted by Ethereum Foundation have been uploaded:
- Conditional Recall by @Christoph and @sxysun
- Empirical analysis of AMM loss versus rebalancing on layer 2 chains by @elainehu
- Who Wins Ethereum Block Building Auctions and Why? by @boz1 and @sui414
- Fork-Choice enforced Inclusion Lists (FOCIL) by Julian Ma
- The tension between MEV and Censorship Resistance Gadgets by Julian Ma
- Single Slot Finality and the future of staking by Francesco
- A DAG-Based Mechanism for Fairer and More Decentralized Reward Distribution by Barnabé Monnot
- L2 Specific MEV Mitigation Strategies by Joseph Poon
- Inclusion List Inevitable Tradeoffs by Terence Tsao
- Bootstrapping a block builder by Sean Anderson
- Can we fix MEV? by Jonah Burian
- Does Ethereum Really Need PBS? Solving MEV at the app vs the infrastructure layer by Felix Leupold
- Is multi-block MEV a thing? Insights from 2 years of MEV Boost Data by Pascal Stichler
- Next Generation AMMs - Eliminating LVR by Anna George
- Fair combinatorial auction for trade intents: how to design mechanisms without a numeraire by Andrea Canidio
- A Revenue Model for Based Rollups by Conor McMenamin
- The Chain Abstraction Master Plan by Stephane Gosselin
- Building a Cross-Chain DEX with Chain Abstraction & Intents by Shao
- Native Account Abstraction in Pectra, rollups and beyond: combining EOF, EIP-7702 and RIP-7560 by Alex Forshtat

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- Uniday hosted by Uniswap Foundation, Unichain, and Flashbots:
- Uniswap Community Update by Devin Walsh
- Building Unichain by Mark Toda
- Designing for the Superchain by Chelsy Wu
- MEV Alignment: How Ethereum's History with MEV Can Help Rollups Win by @shea
- The Future of Interoperability by Mark Tyneway
- Leading DeFi Through Collaboration, Innovation, and Access with Stani Kulechov and Devin Walsh
- Panel: Social Capital with Dylan Abruscato, Chase Chapman, and Iz
- Scaling Defi for Global Finance by Gordon Liao
- The Next Generation of DeFi Builders by Bhaumik Patel
- App Specific Sequencing by Ludwig Thouvenin and Yuki Yuminaga
- Transforming Financial Infrastructure into Public Goods by Paul Frambot
- Building with Circle on Unichain by Elton Tay
- Realizing the Rollup Centric Roadmap by dmarz
- Panel: What's Beyond High-Performance Layer 2's with Georgios Konstantopoulos, @bert , Mark Toda and Mark Tyneway
- Priority Is All You Need by Dan Robinson
- Panel: Where the Infinite Garden Grows with Vitalik Buterin, @phil, Karl Floersch, Ben Jones, Jing Wang, and @Tina
- Thread by Uniswap Foundation

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- Thread by Uniswap Foundation
- preconf.erence hosted by Primev, Nethermind, Taiko Gwyneth, and Puffer Finance:
- On the Economic Viability of Preconfirmations by Conor McMenamin
- Panel: Shared Sequencing and Synchronous Commitments with Brecht Devos, Noah Pravecek, Alysia, Dex Chen, AJ Park, Can Kisagun, and Christian Matt
- Panel: Solver POV with Markus Schmitt, Matt Deible, Connor, Nikita Ovchinnik, Nikita Ovchinnik, Vishwa Naik, and Wee Howe
- Panel: Preconf Flavors with mempirate, Kevin Lepsoe, Harry Gao, Murat Akdeniz, and Evan Kim
- Panel: Based Rollups with Irfan Shaik, Amir Forouzani, Kaito, Ahmad Mazen Bitar, and Justin Drake
- Thread by Primev
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- Thread by Primev
- EthScale @ Devcon hosted by Caladan and ETHGas:
- Preconfs and the Future of PBS with Artemiy Parshakov, kassandra.eth, Luca Georges Wee Howe, and Kevin Lepsoe
- Synchronous Composability in a Multi-Layer World with Cecilia Zhang, Sam Battenally, Ellie Davidson, and Jiawei Zhu
- An Insider's Perspective on the Evolving MEV Landscape with Yuki Yuminaga, Alex Watts, Matt Cutler and John Park
- ETH Gas Markets Panel with Kevin Lepsoe, Juan David, Alain Kunz, Artemiy Parshakov, Laszlo Szabo, and Einar

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- Thread by Caladan
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- Thread by Caladan
- DataPalooza hosted by The Graph:
- Orderflow Dynamics for Ethereum Block Builders by @elainehu
- Towards a Decentralised Trade Supply Chain by Markus Schmitt
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- Blockchain Oracle Summit hosted by Party Action People:
- Panel: Oracle Extractable Value: Unlocking New Revenue Models and Sustainability for Oracles & Dapps with Ugur Mesinlioglu, Ariah Klages-Mundt, @tesa, Matt Rice, and Shayan Eskandar
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- Ethereum Interop Forum:
- L2 Interop Forum with Vitalik Buterin, Mark Tyneway, Marcin Michalski, Brecht Devos, Haichen Shen, Ed Felten, Nicolas Liochon, and Marc Boiron.
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- Infinite Jungle: ePBS Office Hours invites Potuz and Terence Tsao to discuss ePBS and their efforts to prepare EIP-7732 for the Fusaka upgrade.
- Thread by Christine Kim
- Thread by Christine Kim
- EIP-7732 breakout room #13 hosted by Potuz discusses solutions for handling withdrawals after empty blocks in EIP-7732, and ways to mitigate the nothing-at-stake risks for staking pools.
- Notes by[Terence Tsao

](https://terencecha.in/)

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Other

- United States Court of Appeals for the Fifth Circuit No. 23-50669 determines that U.S Department of Treasury's sanctions against Tornado Cash immutable smart contracts are unlawful.
- Thread by Paul Grewal
- Thread by Bill Hughes
- Thread by Paul Grewal
- Thread by Bill Hughes

- Post-Mortem: High Missed Block Rate Incident on 28/11/2024 by Titan Relay details an incident on Nov 28th that caused a high rate of missed blocks due to invalid blocks being processed optimistically by their relay.
- Thread by Titan Relay
- Thread by Titan Relay
- speedrunning anoncast natively on X with TEEs by @sxysun livestreamed coding anoncast_ natively on Twitter with TEEs.
- Automata at Devcon 2024 by Automata highlights their participation in Devcon SEA focused on TEEs, secure hardware, and web3 integrations.
- Thread by Automata
- Thread by Automata

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