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.

See our Transparency Reports for deeper dives into updates related to Flashbots.

Papers & Articles

- Batching, Bidding and Latency by Christoph Schlegel study the relative performance of different transaction ordering policies such as FCFS, batch auctions, and hybrid formats like Arbitrum's time boost.
- Summary by Christoph Schlegel
- Summary by Christoph Schlegel
- PEPC-DVT: PEPC with no changes to the consensus protocolby diego introduces a mechanism for enforcing proposer commitments without altering Ethereum's existing consensus protocol.
- Thread by diego
- Follup up thread by diego
- Thread by diego
- Follup up thread by diego
- Slashing penalty analysis; EIP-7251 by Mike Neuder and Barnabé Monnot proposes two modifications to how slashed validators with large effective balances under EIP-7251 would be penalized to help de-risk consolidation.
- Cumulative, Non-Expiring Inclusion Lists by Toni Wahrstätter suggests edits to better align thecurrent Inclusion List design by Vitalik Buterin and Mike Neuder with the economic incentives of large staking pool operators.
- Censorship Resistance with Restaking by EigenLayer presents two restaking designs to enhance the censorship resistance in PBS through partial block relaying; MEV-Boost+

and MEV-Boost++

. * Thread by EigenLayer

- Thread by EigenLayer
- WTF Is Anoma? Part 1: WTF Are Intents? by Delphi Digital dives into Anoma with a focus on intents, counterparty discovery, and solvers.
- Thread by Delphi Digital
- Thread by Delphi Digital
- Helping Curve Save $6m of User Fundsby Addison outlines the white-hat operation that rescued $6M from Curve LPs in the wake of the Vyper re-entrancy exploits last month.

Posts & threads

- Notes on the SGX TCB Recovery after Downfall by Andrew Miller provides an overview of howDownfall affects SGX and the TCB Recovery process.
- Talk: WTF is TCB Recovery? by Andrew Miller at MEV-SBC '23.
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- 𝔏𝔲𝔨𝔢 published a thread with takeaways from Jason Milionis talk at SBC23 on LVR, arbitrage profit, and LP fees in AMMs.
- Terence.eth published a thread summarizing Ed Felten talk at MEV-SBC '23 on transaction ordering policies at different layers, with a focus on L2, L3 and the Arbitrum sequencer.
- Alex Nezlobin published a thread that investigates a searcher strategy that both provides JIT liquidity and

sandwich the victim in order to extract additional MEV.

- Xin Wan published a thread reflecting on their previous research on JIT liquidity in Uniswap and how UniswapX will make JIT strategies more efficient while protecting users from being sandwiched.

Talks & Discussions

- The Science of Blockchain Conference 2023 at Stanford University brought together researchers and practitioners to discuss the application of cryptography, decentralized protocols, formal methods, and empirical analysis, to improve the security and scalability of blockchains.
- Recording Monday
- Recording Tuesday
- Recording Wednesday
- Recording Monday
- Recording Tuesday
- Recording Wednesday
- The MEV Workshop at the Science of Blockchain Conference 2023 (MEV-SBC '23)extended SBC with a full day dedicated to MEV with talks on; ordering policies for MEV mitigation, robust decentralization, MEV across the stack, and research problems for the next generation of MEV solutions.
- Recordings from MEV-SBC '23
- Recordings from MEV-SBC '23
- Nitro Intent-based Hackerhouse @SBC hosted by SevenX Ventures was a week-long hackerhouse and event space with talks related to MEV, ZK, AA, and new trends.
- Recordings from Nitro Intent-based Hackerhouse @SBC
- Thread by Grace Deng
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- MEV Researchathon @SBC '23 was a research-engineering event aimed to accelerate the collaborative R&D process across teams with a focus on building out specs and prototypes.
- Uncommon Core 2.0: An Incomplete Guide to PBS - with Mike Neuder and Chris Hagerdives into the past, present and future of PBS, including mev-geth, MEV-Boost, ePBS and PEPC.
- Scraping Bits: Titan's Takeover: How a MEV Team Controls 26% of All Blocks With Block Building - Ft. Kubuncovers the strategies that propelled Titan Builder to become a leading block builder on Ethereum.
- Epicenter Podcast: Stephane Gosselin: Frontier Research - Solving Ethereum's MEV Problemexplores Frontier Research, the MEV supply chain, decentralized block building, PBS, MEV-burn, intents and more.
- Node Operator Community Call #9 hosted by Lido includes a presentation by Stephane Gosselin that introduces the open beta of Frontier Boost Relay.

Other

- Systematization of Knowledge (SoK): Decentralized Finance (DeFi) Attacksby Liyi Zhou, Xihan Xiong, Jens Ernstberger, Stefanos Chaliasos, Zhipeng Wang, Ye Wang, Kaihua Qin, Roger Wattenhofer, Dawn Song and Arthur Gervais is a dataset of attacks that have occurred in the Ethereum DeFi ecosystem.
- Paper: SoK: Decentralized Finance (DeFi) Attacks
- Talk: SoK: Decentralized Finance (DeFi) Attacks by Kaihua Qin
- Paper: SoK: Decentralized Finance (DeFi) Attacks
- Talk: SoK: Decentralized Finance (DeFi) Attacks by Kaihua Qin
- mev.fyi by Valentin is an initiative to gather and curate research related to MEV, incentive alignment, mechanism

design, and their implications in the blockchain ecosystem, with a focus on Ethereum.

- Thread by Valentin
- Thread by Valentin
- Mempool Dumpster by Chris Hager and Anton provides a complete dataset of mempool transactions in Parquet and CSV format, as well as daily summaries.
- Example: daily summary of 2023-09-01
- Example: daily summary of 2023-09-01
- Beaconchain Light by pk910.eth is a new open-source and lightweight block explorer for the beaconchain.
- Dencun devnet 8 instance
- Dencun devnet 8 instance

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