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.

— Last week was packed with new content which results in this edition being longer than usual. To keep things neat and tidy, separate summaries will not be included for each relevant presentation at ZuBerlin, Preconf.wtf and DappCon24. These events are instead listed below with a single link for the reader to explore further.

Papers & Articles

- SPEC-06: Optimizing Exit Queues for Proof-of-Stake Blockchains: A Mechanism Design Approach by Mike Neuder, Mallesh Pai and Max Resnick studies exit mechanisms in PoS protocols and introduces the MINSLACK mechanism where the exit rate depends on the number of previous exits and a set of constraints imposed by the protocol.
- Thread by Mike Neuder
- Thread by Mallesh Pai
- Thread by Max Resnick
- Thread by Mike Neuder
- Thread by Mallesh Pai
- Thread by Max Resnick
- Preconfirmations: Credible Promise of Future Execution by Raghav Agarwal analyzes proposed designs for preconfirmations and their implications on decentralization, MEV and censorship resistance.
- Thread by Raghav Agarwal
- Thread by LongHash Ventures
- Thread by Raghav Agarwal
- Thread by LongHash Ventures
- Commitment Games and Where to Find Them by Murat Akdeniz describes the design considerations for commitment games such as preconfirmations, multi-block MEV, and more.
- Thread by Primev
- Thread by Primev
- Preconfirmations: On splitting the block, mev-boost compatibility and relays by Daniele Palombi introduces eXtensible Gas Auctions and provides an overview of XGA-styled preconfirmation mechanisms.
- Forum post by Daniele Palombi
- Forum post by Daniele Palombi
- Solutions to the Preconf Fair Exchange Problem by Elim Poon proposes an alternative approach to the preconfirmation fair exchange problem in leader-based preconfirmation setups.
- A simple, small, mev-boost compatible preconfirmation idea by Fabrizio Romano Genovese explores a way to extend MEV-Boost to incorporate preconfirmations with minimal changes, and backward compatibility.
- Forum topic by Fabrizio Romano Genovese
- Forum topic by Fabrizio Romano Genovese
- One-bit-per-attester inclusion lists by Vitalik Buterin describes a way to decentralize the authority of inclusion lists from the proposer to a group of attesters with semi-deniability.
- Presentation (18:45) by Vitalik Buterin at ZuBerlin
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- How SUAVE Can Address Builder Centralization by 100y.eth presents issues related to builder centralization and how solutions like SUAVE might mitigate these problems.

- Thread by 100y.eth
- Thread by 100y.eth
- The Unseen Bidding War That is Happening Every Secondby EigenPhi looks at dynamics in the builder market and the strategies used by the leading builders to win blocks.
- Fueling the Win: Analyzing Builders' Gas Bidding Strategyby EigenPhi analyzes gas usage patterns and bidding strategies used by Titan.
- The Unseen Bidding War: Beaver's Craft vs. Titan's Strengthby EigenPhi analyzes gas usage patterns and bidding strategies used by Beaverbuild.
- Fueling the Win: Analyzing Builders' Gas Bidding Strategyby EigenPhi analyzes gas usage patterns and bidding strategies used by Titan.
- The Unseen Bidding War: Beaver's Craft vs. Titan's Strengthby EigenPhi analyzes gas usage patterns and bidding strategies used by Beaverbuild.
- Blobs, Reorgs, and the Role of MEV-Boostby Toni Wahrstätter explores how MEV-Boost affects the probability of reorgs and blob inclusion rates.
- Slot Inclusion Rates and Blob Market Combinatorics by Evan Kim provides insights into the blob market by analyzing reorg risk, submission strategies, and potential censorship.
- Blob Adoption and Utilization - Insights from the first 85 daysby Victoria Tran present data related to the impact of blobs on gas prices and the scalability of L2s.
- Burn incentives in MEV pricing auctions by Anders Elowsson reviews proposed mechanisms for burning MEV and highlights how incentives to drive up the price floor can emerge regardless of any direct profit motive among builders for doing so.
- Thread by Anders Elowsson
- Thread by Anders Elowsson
- The Franchised Sequencer by Tom Walton-Pocock presents a method to make dapps more lightweight by only storing a fingerprint of their state on Ethereum and instead post validity proofs.
- EIP for EVM Native Bundles by Lily outlines an EIP that gives transactions and smart contracts more control over how they are sequenced through explicit delegation of local sequencing rights.
- Thread by Lily
- Thread by Lily
- Forced txs vs based sequencing by donnoh explores the differences between forced transaction

mechanisms and based sequencing

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- 5 post capitalist experiments to be better infomed for MEV redistributionby @guayabyte

discusses cyclical failures to change underlying thought patterns and proposes experiments to address issues in Ethereum.

Posts & Threads

- Robert Miller published a post to highlight that Flashbots Whitehats saved approximately $1.5M in ZKsync tokens from users with hacked private keys.
- Data Always published a post to highlight that the cumulative MEV-Boost payouts have exceeded $1B.
- Alex Nezlobin published a post to describe the problem of finding a price for arbitrage preconfirmations, arguing that it cannot satisfy both arbitrageurs and validators due to conflicting profit expectations.
- Yuki Yuminaga published a thread to explore use cases that can be unlocked via preconfirmations beyond based sequencing.
- Ellie Davidson published a post that categorizes preconfirmations across a spectrum between inclusion

to execution

and highlights the differences in terms of UX, latency and MEV.

- NodeKit published a thread to demonstrate atomic composability across rollups using Javelin.

Talks & Discussions

- Recordings from the first week of ZuBerlin have been uploaded with talks and panels on topics related to sequencing, MEV, intents, ZK and more.
- Preconf.wtf curated by T.I.N.A. and Kubi Mensah
- Preconf.wtf curated by T.I.N.A. and Kubi Mensah
- Recordings from DappCon24 by GnosisDAO have been uploaded with talks related to L2s, application design, sequencing, MEV, and more.
- Agenda by GnosisDAO
- Agenda by GnosisDAO
- dAGI House by cyber•Fund and Epic Web3: Building Cooperative AI via Decentralized Commitment Devices by Xinyuan Sun discuss learnings from running high-frequency auctions for algorithmic agents with real economic incentives and hyper-adversarial behaviors.
- Flashwares iv: TEEception by @mateusz explores nested virtualization in TDX by running attestable containers in an attested TDX VM.
- Forum topic by @mateusz
- Forum topic by @mateusz
- CBER forum: Beyond the Ethereum Protocol: Proposer-Builder-Separation by Barnabé Monnot provides an overview of MEV-Boost and the execution duties of proposers.
- Slides by Barnabé Monnot
- Slides by Barnabé Monnot
- The Gwart Show: Concerning Trading On-Chain, And Other Bad Ideas invites Benedict Brady and Doug Colkitt to discuss DEX design, MEV, PBS, and more.
- Post by Blockspace Media
- Post by Blockspace Media

Other

- Relayscan.io Bid Archive by @metachris provides nightly data with all builder bids across all MEV-Boost relays.
- Forum post by @metachris
- Post by @metachris
- Video by @metachris
- Forum post by @metachris
- Post by @metachris
- Video by @metachris
- PBS Snapshot by Data Always is a command-line program that delivers a simplistic snapshot of PBS on Ethereum.
- Commit-Boost by Gattaca, Limechain and EigenLayer is a proof of concept for a validator sidecar focused on standardizing the last mile of communication between validators and third parties.
- ZuBerlin - Preconfs Devnet presents the result of a multi-team effort at ZuBerlin to run a based preconfirmation devnet.

- Post by Justin Drake
- Thread by Chainbound
- Post by Chorus One
- Post by Justin Drake
- Thread by Chainbound
- Post by Chorus One
- Searchers of Nottingham by Dragonfly is a multiplayer, MEV-themed game, where players act as merchants at a medieval fair exchanging their gold and goods.
- Post by Dragonfly
- Post by Dragonfly
- MEV-Tax: A Solidity Library for MEV Taxes is a Solidity library that allows smart contracts to automatically chargeMEX taxes based on the priority fees of transactions.
- Thread by diego
- Thread by diego
- Research Project: From Trusted to Trustless Execution Environmentsby @Quintus outlines an effort by Flashbots to realize a TEE which more thoroughly enables the decentralized ethos and goals of the crypto industry.
- T(EE)-Stack demo: running a validator in TDXby @fnerdman is a follow along tutorial for running a validator in TDX using the yocto minimal VM, as presented in the T-Stack demo by @fnerdman at ZuBerlin.
- Taxonomy of TEE Attacks by @Quintus is a wiki designed to collect information related to TEE vulnerabilities.
- Blockchain projects working with trusted execution environmentsby @guayabyte is a wiki on blockchain projects utilizing TEEs.
- ePBS FAQ #0 by Terence Tsao addresses questions and concerns related to ePBS.
- Questions by Christine Kim
- Reply by Terence Tsao
- Reply by Terence Tsao
- Questions by Christine Kim
- Reply by Terence Tsao
- Reply by Terence Tsao
- Intro to Whetstone by Whetstone Research introduces a mechanism design research firm with a focus on the future of onchain markets.
- Thread by Austin Adams
- Thread by Austin Adams

Upcoming events

- June 20

: Light In The Dark Forest: How To Fight MEV by The Defiant with Phil Daian, Kushal Babel and Justin Drake * Post by The Defiant

- Post by IC3
- Post by The Defiant
- Post by IC3
- EC'24 Preview Week by EC'24:

- June 25

: TFM Tutorial by Hao Chung, Matheus V. X. Ferreira, Yotam Gafni and Aviv Yaish

- June 26

: Automated Market Makers and Loss-versus-Rebalancing (LVR): a Deep Dive into Decentralized Financeby Jason Milionis, Ciamac C. Moallemi, and Tim Roughgarden * Thread by Jason Milionis

- Thread by Jason Milionis

- June 25

: TFM Tutorial by Hao Chung, Matheus V. X. Ferreira, Yotam Gafni and Aviv Yaish

- June 26

: Automated Market Makers and Loss-versus-Rebalancing (LVR): a Deep Dive into Decentralized Financeby Jason Milionis, Ciamac C. Moallemi, and Tim Roughgarden * Thread by Jason Milionis

- Thread by Jason Milionis

- June 26

: MEV-Boost community call #9 by Alex Stokes

- July 7

: Sequencing x CAKE day by Espresso and Frontier Research

- July 8-11

: EthCC by Ethereum France

- July 8

: Searcher.wtf by aori, Flood, Chainbound, PropellerHeads, bloXroute Labs and Barter * Agenda by aori

- Post by aori
- Post by Taker
- Agenda by aori
- Post by aori
- Post by Taker

- July 9

: L2con by Epic Web3

- July 10

: FHE Summit by FHE Onchain

- July 11

: Unaligned Day by FastLane Labs * Thread by Alex Watts

- Thread by Alex Watts
- Thread by Alex Watts
- Thread by Alex Watts

- July 11-13

: Modular Summit 3.0 by Celestia Labs and Maven11

- Aug 6

: The MEV Workshop at the Science of Blockchain Conference 2024 (MEV SBC '24)by Flashbots

- Aug 7-9

: The Science of Blockchain Conference 2024 (SBC'24) by IC3, Stanford Center for Blockchain Research and UC Berkeley RDI.

- Aug 16-17

: Frontiers by Paradigm * Thread by Georgios Konstantopoulos

- Thread by Georgios Konstantopoulos

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