

At-a-Glance Schedule



Conference on Parallel Processing for Scientific Computing

March 5–8, 2024 · Baltimore, Maryland, US

SIAM International Meshing Roundtable Workshop 2024

March 5–8, 2024 · Baltimore, Maryland, US

Online Program and Mobile App

Attendees are encouraged to visit the following to view the Online Program Schedule:

PP24 <https://www.siam.org/conferences/cm/program/program-and-abstracts/pp24-program-abstracts>

IMR24 <https://internationalmeshingroundtable.com/imr32/program/>

The Mobile App and Online Program Schedule contain the most up-to-date information for PP24.

The Mobile App will contain IMR24 program information as of February 7.

Please refer to <https://internationalmeshingroundtable.com/imr32/program/> for the current IMR24 schedule.

A searchable abstract document for PP24 is also posted.

SIAM Events Mobile App



www.tripbuildermedia.com/apps/siam

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<https://www.siam.org/conferences/cm/conference/pp24>
<https://www.siam.org/conferences/cm/conference/imr24>

Tuesday, March 5

Tuesday, March 5

Tuesday, March 5

8:30 a.m. – 7:00 p.m.

Registration
Calvert Foyer, Ballroom level

9:15 a.m. – 5:30 p.m.

SIAM International Meshing Roundtable Workshop
2024 (SIAM IMR24) Short Course
The SIAM IMR24 Workshop follows its own
schedule posted at:<https://internationalmeshingroundtable.com/imr32/program/>
Baltimore Theater, Mezzanine Level

11:30 a.m. – 1:00 p.m.

SIAM International Meshing Roundtable Workshop
2024 (SIAM IMR24) Short Course Lunch
Maryland Room, Lower Lobby

1:00 p.m. – 3:00 p.m.

Concurrent Sessions**MS1** Parallel-in-Time: Recent Developments in
Software and Numerical Methods - Part I of III
Calvert Ballroom Salon C, Ballroom level**MS2** A Vision of Today's and Future Programming
Models: Challenges and Opportunities - Part I of III
Calvert Ballroom Salon A, Ballroom level**MS3** Linear Solvers in Large Distributed
Applications - Part I of III

Fairmont Suite, 19th floor

MS4 Smart Networks in HPC: For Fun or Profit (or
Both)? - Part I of III

Calvert Ballroom Salon B, Ballroom level

MS5 Matrix Computations and Scientific
Applications - Part I of III

Calvert Ballroom Salon D, Ballroom level

MS6 Computational Challenges and Recent
Progress in Solving Quantum Many-Body Problems
- Part I of III

Calvert Ballroom Salon E, Ballroom level

MS7 Performance and Accuracy Tradeoffs of
Adaptive Mesh Refinement for Interfaces - Part I
of II

Royal Board Room, 19th floor

MS8 Large Scale Graph Analytics - Part I of II
Caswell Suite, 19th floor**MS9** Application Experiences at Exascale:
Successes and Challenges - Part I of II

Royal Conference Foyer, 19th floor

MS10 Sparse Computations in Science and
Engineering - Part I of II

Hanover Suite A, Mezzanine level

MS11 HPC Algorithms for Inverse Problems and
Digital Twins - Part I of II

Hanover Suite B, Mezzanine level

CP1 Applications

Lafayette Suite, Mezzanine level

1:00 p.m. – 5:00 p.m.

SIAM Book Sales
Calvert Ballroom Foyer, Ballroom level

3:00 p.m. – 3:30 p.m.

Coffee Break
Versailles Room, Lobby level

3:30 p.m. – 5:30 p.m.

Concurrent Sessions**MS12** Parallel-in-Time: Recent Developments in
Software and Numerical Methods - Part II of III
Calvert Ballroom Salon C, Ballroom level**MS13** A Vision of Today's and Future
Programming Models: Challenges and Opportunities
- Part II of III

Calvert Ballroom Salon A, Ballroom level

MS14 Linear Solvers in Large Distributed
Applications - Part II of III
Fairmont Suite, 19th floor**MS15** Smart Networks in HPC: For Fun or Profit
(or Both)? - Part II of III

Calvert Ballroom Salon B, Ballroom level

MS16 Matrix Computations and Scientific
Applications - Part II of III

Calvert Ballroom Salon D, Ballroom level

MS17 Computational Challenges and Recent
Progress in Solving Quantum Many-Body Problems
- Part II of III

Calvert Ballroom Salon E, Ballroom level

MS18 Performance and Accuracy Tradeoffs of
Adaptive Mesh Refinement for Interfaces - Part II
of II

Royal Board Room, 19th floor

MS19 Large Scale Graph Analytics - Part II of II
Caswell Suite, 19th floor**MS20** Application Experiences at Exascale:
Successes and Challenges - Part II of II

Royal Conference Foyer, 19th floor

MS21 Sparse Computations in Science and
Engineering - Part II of II

Hanover Suite A, Mezzanine level

MS22 HPC Algorithms for Inverse Problems and
Digital Twins - Part II of II

Hanover Suite B, Mezzanine level

CP2 Multigrid and Domain Decomposition
Lafayette Suite, Mezzanine level

5:30 p.m. – 5:45 p.m.

Intermission

5:45 p.m. – 6:00 p.m.

Welcome Remarks
Calvert Ballroom Salon C, Ballroom level

6:00 p.m. – 6:45 p.m.

IP1 Frontier: The World's Most Powerful Computer
for Science
Bronson Messer, Oak Ridge National Laboratory,
U.S.
Calvert Ballroom Salon C, Ballroom level

6:45 p.m. – 8:45 p.m.

Welcome Reception
Versailles Room, Lobby level

Wednesday, March 6

8:00 a.m. – 5:30 p.m.

Registration
Calvert Foyer, Ballroom level

8:15 a.m. – 5:30 p.m.

SIAM International Meshing Roundtable Workshop
2024 (SIAM IMR24)
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schedule posted at:<https://internationalmeshingroundtable.com/imr32/program/>
Baltimore Theater and Maryland Room

8:30 a.m. – 9:15 a.m.

IP2 The Power of Less: Harnessing Sparsity for
Performance Optimization
Maryam Mehri Dehnavi, University of Toronto,
Canada
Calvert Ballroom Salon C, Ballroom level

9:00 a.m. – 5:00 p.m.

SIAM Book Sales
Calvert Ballroom Foyer, Ballroom level

9:15 a.m. – 9:30 a.m.

Intermission

9:30 a.m. – 10:30 a.m.

PD1 Breaking Barriers: The Career Odysseys of
Diverse Women in Computing
Calvert Ballroom Salon C, Ballroom level

10:30 a.m. – 11:00 a.m.

Coffee Break
Versailles Room, Lobby level

11:00 a.m. – 12:00 p.m.

CP5 Proceedings Paper Session III
Calvert Ballroom Salon A, Ballroom level

11:00 a.m. – 12:30 p.m.

Concurrent Sessions**CP3** Proceedings Paper Session I
Calvert Ballroom Salon C, Ballroom level**CP4** Proceedings Paper Session II
Fairmont Suite, 19th floor

12:30 p.m. – 2:15 p.m.

Lunch Break

Wednesday, March 6

Thursday, March 7

Thursday, March 7

2:15 p.m. – 3:00 p.m.

IP3 Prospects for Efficient General-purpose Algebraic Solver Libraries for Multi-node GPU System

Barry Smith, Simons Foundation and Flatiron Institute, U.S.

Calvert Ballroom Salon C, Ballroom level

3:00 p.m. – 3:30 p.m.

Coffee Break

Versailles Room, Lobby level

3:30 p.m. – 5:30 p.m.

Concurrent Sessions

MS23 Parallel-in-Time: Recent Developments in Software and Numerical Methods - Part III of III
Calvert Ballroom Salon C, Ballroom level

MS24 A Vision of Today's and Future Programming Models: Challenges and Opportunities - Part III of III

Calvert Ballroom Salon A, Ballroom level

MS25 Linear Solvers in Large Distributed Applications - Part III of III

Fairmont Suite, 19th floor

MS26 Smart Networks in HPC: For Fun or Profit (or Both)? - Part III of III

Calvert Ballroom Salon B, Ballroom level

MS27 Matrix Computations and Scientific Applications - Part III of III

Calvert Ballroom Salon D, Ballroom level

MS28 Computational Challenges and Recent Progress in Solving Quantum Many-Body Problems - Part III of III

Calvert Ballroom Salon E, Ballroom level

MS29 Performance Optimization for Multiphysics Applications on Structured Mesh with Particles

Royal Board Room, 19th floor

MS30 High-Performance Linear Algebra Computation for Data Analysis

Caswell Suite, 19th floor

MS31 Progress and Challenges in Extreme Scale Computing and Big Data

Royal Conference Foyer, 19th floor

MS32 Recent Progress in Block Orthogonalization Schemes

Hanover Suite A, Mezzanine level

MS33 Simulation Modeling and Workflow Tools

Hanover Suite B, Mezzanine level

CP6 Performance and Scalability

Lafayette Suite, Mezzanine level

5:30 p.m. – 5:45 p.m.

Intermission

5:45 p.m. – 7:45 p.m.

PP1 Poster Session

Versailles Room, Lobby level

8:00 a.m. – 4:00 p.m.

Registration

Calvert Foyer, Ballroom level

8:30 a.m. – 9:10 a.m.

SP1 SIAM Activity Group on Supercomputing Best Paper Prize: Accelerating Sparse Iterative Solvers and Preconditioners Using RACE

Christie Alappat, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

Calvert Ballroom Salon C, Ballroom level

8:30 a.m. – 5:00 p.m.

SIAM International Meshing Roundtable Workshop 2024 (SIAM IMR24)

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<https://internationalmeshingroundtable.com/imr32/program/>

Baltimore Theater and Maryland Room

9:00 a.m. – 5:00 p.m.

SIAM Book Sales

Calvert Ballroom Foyer, Ballroom level

9:10 a.m. – 9:50 a.m.

SP2 SIAM Activity Group on Supercomputing Early Career Prize: Scalability and Productivity in Data-Intensive Biological Research on Massively Parallel Systems

Giulia Guidi, Cornell University and Lawrence Berkeley National Laboratory, U.S.

Calvert Ballroom Salon C, Ballroom level

9:50 a.m. – 10:30 a.m.

SP3 SIAM Activity Group on Supercomputing Career Prize: Tackling High Dimensional Problems Through Randomization and Communication Avoidance

Laura Grigori, EPFL and PSI, Switzerland

Calvert Ballroom Salon C, Ballroom level

10:30 a.m. – 11:00 a.m.

Coffee Break

Versailles Room, Lobby level

11:00 a.m. – 1:00 p.m.

Concurrent Sessions

MS34 Computational Challenges in Cardiac Electrophysiology Simulation

Calvert Ballroom Salon C, Ballroom level

MS35 Towards Exascale Eigenvalue Algorithms for Physical Simulation - Part I of III

Calvert Ballroom Salon A, Ballroom level

MS36 Modern Preconditioners and Linear Solvers in Scientific Applications - Part I of II

Fairmont Suite, 19th floor

MS37 Realistic Proxy Applications and Datasets for Heterogeneous Architecture Scalable Communication - Part I of II

Calvert Ballroom Salon B, Ballroom level

MS38 Advances in Low-Rank Factorization Based Methods - Part I of II

Calvert Ballroom Salon D, Ballroom level

MS39 Scaling Up Quantum and Hybrid Quantum-Classical Algorithms - Part I of II

Calvert Ballroom Salon E, Ballroom level

MS40 Efficient Finite Element Assembly Using the Kokkos Programming Model - Part I of II

Royal Board Room, 19th floor

MS41 Correctness, Uncertainty, and Training of ML Models

Caswell Suite, 19th floor

MS42 Major Outcomes and Impact of The Exascale Computing Project

Royal Conference Foyer, 19th floor

MS43 Advancements in Sparse Linear Algebra: Hardware-Aware Algorithms and Optimization Techniques - Part I of II

Hanover Suite A, Mezzanine level

MS44 Driving Scientific Workflows from the Data Plane - Part I of II

Hanover Suite B, Mezzanine level

CP7 Computational Fluid Dynamics

Lafayette Suite, Mezzanine level

1:00 p.m. – 2:30 p.m.

Lunch Break

2:30 p.m. – 3:15 p.m.

IP4 Towards Zero-waste Computing Through Co-design: The Case of Graph Processing

Ana Lucia Varbanescu, University of Twente, Netherlands

Calvert Ballroom Salon C, Ballroom level

3:15 p.m. – 3:45 p.m.

Coffee Break

Versailles Room, Lobby level

3:45 p.m. – 5:45 p.m.

Concurrent Sessions

MS45 Solving Large-Scale Problems with Challenging Physics in Earth Sciences

Calvert Ballroom Salon C, Ballroom level

MS46 Towards Exascale Eigenvalue Algorithms for Physical Simulation - Part II of III

Calvert Ballroom Salon A, Ballroom level

MS47 Modern Preconditioners and Linear Solvers in Scientific Applications - Part II of II

Fairmont Suite, 19th floor

MS48 Realistic Proxy Applications and Datasets for Heterogeneous Architecture Scalable Communication - Part II of II

Calvert Ballroom Salon B, Ballroom level

Thursday, March 7

MS49 Advances in Low-Rank Factorization Based Methods - Part II of II
Calvert Ballroom Salon D, Ballroom level

MS50 Scaling Up Quantum and Hybrid Quantum-Classical Algorithms - Part II of II
Calvert Ballroom Salon E, Ballroom level

MS51 Efficient Finite Element Assembly Using the Kokkos Programming Model - Part II of II
Royal Board Room, 19th floor

MS52 Next Generation FFT Algorithms in Theory and Practice: Parallel Implementations and Applications
Caswell Suite, 19th floor

MS53 Aspects of Software Engineering and Extreme Scale Computing
Royal Conference Foyer, 19th floor

MS54 Advancements in Sparse Linear Algebra: Hardware-Aware Algorithms and Optimization Techniques - Part II of II
Hanover Suite A, Mezzanine level

MS55 Driving Scientific Workflows from the Data Plane - Part II of II
Hanover Suite B, Mezzanine level

CP8 PDE Solvers
Lafayette Suite, Mezzanine level

5:45 p.m. – 6:00 p.m.

Intermission

6:00 p.m. – 6:45 p.m.

SIAG/SC Business Meeting. Complimentary beer and wine will be served.

Calvert Ballroom Salon C, Ballroom level

Friday, March 8

8:00 a.m. – 3:30 p.m.

Registration

Calvert Foyer, Ballroom level

8:30 a.m. – 9:15 a.m.

IP5 Performance Portability in the Age of Diverse Exascale Architectures
Simon McIntosh-Smith, University of Bristol, United Kingdom
Calvert Ballroom Salon C, Ballroom level

8:30 a.m. – 1:00 p.m.

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Baltimore Theater and Maryland Room

Friday, March 8

9:00 a.m. – 1:00 p.m.

SIAM Book Sales

Calvert Ballroom Foyer, Ballroom level

9:15 a.m. – 9:30 a.m.

Intermission

9:30 a.m. – 10:15 a.m.

IP6 Challenges of Scaling Deep Learning on HPC Systems

Mohamed Wahib, RIKEN Computational Science Research Program, Japan

Calvert Ballroom Salon C, Ballroom level

10:15 a.m. – 10:45 a.m.

Coffee Break

Versailles Room, Lobby level

10:45 a.m. – 12:45 p.m.

Concurrent Sessions

MS56 Novel Algorithms and HPC Implementations for Exascale Particle-In-Cell Methods - Part I of II
Calvert Ballroom Salon C, Ballroom level

MS57 Towards Exascale Eigenvalue Algorithms for Physical Simulation - Part III of III

Calvert Ballroom Salon A, Ballroom level

MS58 Advances in Highly Parallel Solvers for Partial Differential Equations - Part I of II
Fairmont Suite, 19th floor

MS59 Early Experiences of Co-Designing Applications on Exa-Scale Systems - Part I of II

Calvert Ballroom Salon B, Ballroom level

MS60 Randomized Methods in Linear Solvers and Matrix Decompositions - Part I of II

Calvert Ballroom Salon D, Ballroom level

MS61 HPC Algorithms for Kinetic Equations for Plasmas - Part I of II

Calvert Ballroom Salon E, Ballroom level

MS62 Challenges and Techniques for Post-Exascale Dense Linear Algebra Software - Part I of II
Royal Board Room, 19th floor

MS63 Recent Developments in Machine Learning Theory and Computing - Part I of II

Caswell Suite, 19th floor

MS64 Testing and Verification for Performance Portable Programming Systems

Royal Conference Foyer, 19th floor

MS65 Sparsity and Compilers - Part I of II
Hanover Suite A, Mezzanine level

MS66 Differentiable Programming for Parallel Scientific Simulations - Part I of II

Hanover Suite B, Mezzanine level

CP9 Earth Science

Lafayette Suite, Mezzanine level

12:45 p.m. – 2:15 p.m.

Lunch Break

2:15 p.m. – 3:00 p.m.

IP7 Do We Still Need Floating Point Arithmetic?
Rasmus Tamstorf, Independent, U.S.

Calvert Ballroom Salon C, Ballroom level

3:00 p.m. – 3:05 p.m.

Closing Remarks

Calvert Ballroom Salon C, Ballroom level

3:05 p.m. – 3:35 p.m.

Coffee Break

Versailles Room, Lobby level

3:35 p.m. – 5:35 p.m.

Concurrent Sessions

MS67 Novel Algorithms and HPC Implementations for Exascale Particle-In-Cell Methods - Part II of II
Calvert Ballroom Salon C, Ballroom level

MS68 Bridging the Divide: How Excellence in Reproducibility Advances Scientific Discovery

Calvert Ballroom Salon A, Ballroom level

MS69 Advances in Highly Parallel Solvers for Partial Differential Equations - Part II of II

Fairmont Suite, 19th floor

MS70 Early Experiences of Co-Designing Applications on Exa-Scale Systems - Part II of II
Calvert Ballroom Salon B, Ballroom level

MS71 Randomized Methods in Linear Solvers and Matrix Decompositions - Part II of II

Calvert Ballroom Salon D, Ballroom level

MS72 HPC Algorithms for Kinetic Equations for Plasmas - Part II of II

Calvert Ballroom Salon E, Ballroom level

MS73 Challenges and Techniques for Post-Exascale Dense Linear Algebra Software - Part II of II

Royal Board Room, 19th floor

MS74 Recent Developments in Machine Learning Theory and Computing - Part II of II

Caswell Suite, 19th floor

MS75 Sparsity and Compilers - Part II of II

Hanover Suite A, Mezzanine level

MS76 Differentiable Programming for Parallel Scientific Simulations - Part II of II

Hanover Suite B, Mezzanine level

CP10 Sparse Matrices and Graphs

Lafayette Suite, Mezzanine level

ABBREVIATION KEY

CP = Contributed Presentation Session

IP = Invited Plenary Speaker

MS = Minisymposium

MT = Minitutorial

PD = Panel Discussion

PP = Poster Session

SP = Special Lecture

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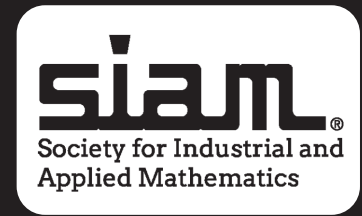
**Thank you to our
FUNDING AGENCY**



Thank you to our IMR24 student travel donor, W. Randolph Franklin.

SIAM Activity Group on Supercomputing (SIAG/SC)

www.siam.org/Activity-Groups/SC



A great way to get involved!

Collaborate and interact with mathematicians and applied scientists whose work involves supercomputing.

ACTIVITIES INCLUDE

- Biennial conference
- Special sessions at SIAM meetings
- SIAG/SC web portal
- SIAG/SC Early Career Prize
- SIAG/SC Career Prize
- SIAG/SC Best Paper Prize

BENEFITS OF SIAG/SC MEMBERSHIP

- Listing in the SIAG's online membership directory
- Additional \$15 discount on registration at the SIAM Conference on Parallel Processing (excludes students)
- Subscription to *SIAM Journal on Scientific Computing*
- Access to **SIAM Engage** online community for SIAG/SC
- Eligibility for candidacy for SIAG/SC office
- Participation in the selection of SIAG/SC officers



ELIGIBILITY FOR SIAG/SC MEMBERSHIP

- Must be a current SIAM member

COST

- \$15 per year
- Outreach members can join one SIAM Activity Group for free and student members can join two for free!

2024–2025 SIAG/SC OFFICERS

Chair: Ulrike Yang, *Lawrence Livermore National Laboratory*
Vice Chair: Rio Yokota, *Tokyo Institute of Technology*
Program Director: Hartwig Anzt, *University of Tennessee*
Secretary: Erin Carson, *Charles University*

Students:

Participate in Your Profession By Getting Involved with SIAM!



- Free and discounted memberships, conference registrations, and publications
- Free membership in two specialized activity groups—networks of professionals within applied math and computational science that organize conferences and newsletters, award prizes, and often post job and fellowship opportunities in the SIAM Engage Online Community
- Student travel awards to SIAM conferences
- Student chapters — get involved or start one at your school
- Publish in *SIAM Undergraduate Research Online* (SIURO) — share research and experience the journal review process
- Free resources about career options in applied math and computational science at siam.org/careers
- Career advice in *SIAM News*
- Prizes to award excellence
- Participate in Gene Golub SIAM Summer School (G2S3)



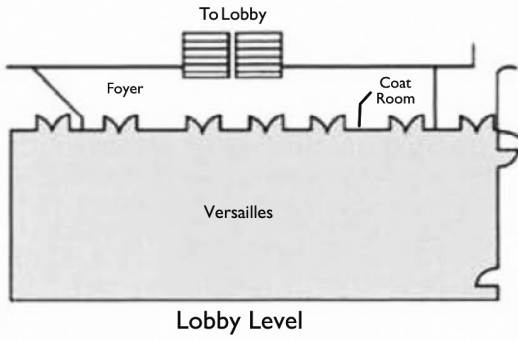
“SIAM is important because professional organizations are vital in bringing up students and early career scientists. Making connections and providing a coherent and consistent community that meets throughout the year is an invaluable thing. Publishing is important too, so SIAM journals are an excellent venue for in-depth work.”

— Jed Brown, SIAM Member, University of Colorado

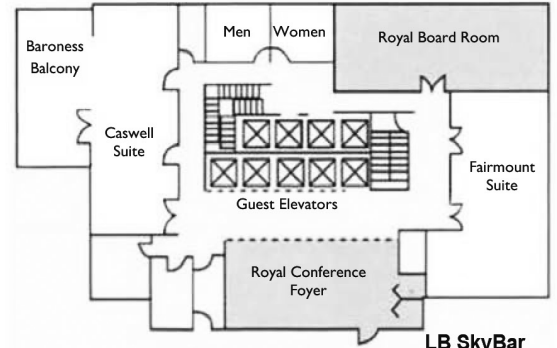
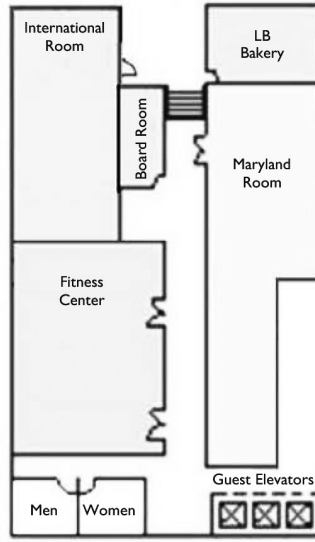


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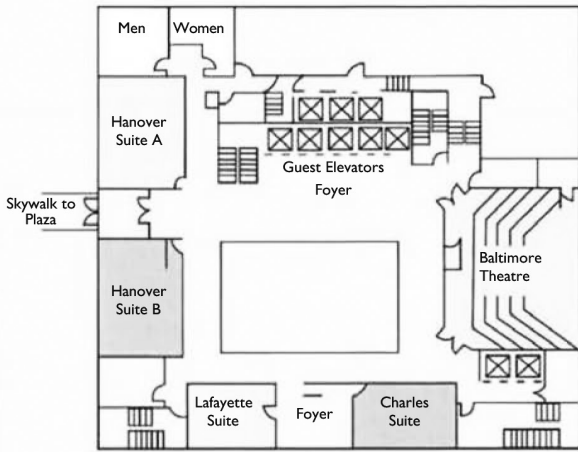
Lord Baltimore Hotel Floor Plan



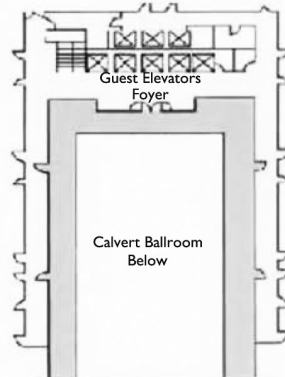
Lobby Level



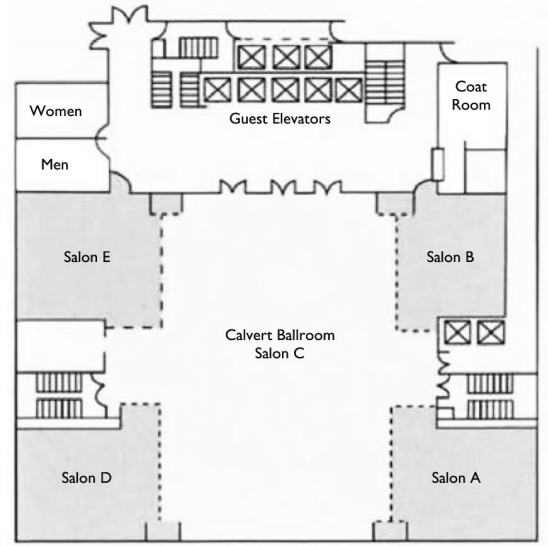
19th Floor Conference Rooms



Mezzanine



Ballroom Balcony



Ballroom Level