

INFORMATION FOR WORKSHOP PARTICIPANTS (3<sup>rd</sup> circular)

Dear participants,

The organizing committee, Zhe-Xi Luo, Pat Herendeen, Kasey Mennie, and Peter Makovicky, take great pleasure in welcoming you to The Field Museum for “The Rise of Modern Biodiversity – A Workshop addressing Critical Transitions in the History of Life”. With over 50 participants and 42 talks and poster presentations, it promises to be a wide-ranging and rich discussion of current progress in paleontology and evolutionary studies. In addition to the organizing committee, we will have a host of Field Museum scientific staff on hand to help, should you have any questions or requests.

The workshop will feature two sessions each day, with a session devoted to each of the following themes:

- 1) TIMING AND ORIGINS OF MODERN BIODIVERSITY AND ECOSYSTEMS.
- 2) THE RISE OF MODERN DIVERSITY: COMBINING PALEONTOLOGICAL AND MOLECULAR PERSPECTIVES
- 3) SEDIMENTOLOGY, TAPHONOMY AND THE STUDY OF FOSSILIZED SOFT TISSUES IN MAJOR LAGERSTÄTTEN
- 4) CLIMATIC AND BIOTIC EVOLUTION IN THE NEOGENE

Each session will start off with a series of 5-8 speakers who will give short lightning talks (of no more than 10 minutes including introductions and questions) followed by a discussion with the aim of identifying new research directions and shared interests. Besides speakers, we have identified a number of panelists to each session who we look to for promoting and inspiring discussion through their expertise on the topic. We also encourage everyone present to contribute to the discussions. Each day of the workshop will feature a poster session, and posters will hang for the full duration of the workshop.

US tax regulations require that The Field Museum get paperwork from everyone attending the workshop. For those who have already provided their forms, we thank you. If you have not yet provided the relevant information, we ask that you please do so at registration. US attendees will need to fill out a W9 and vendor application form. Chinese attendees, please bring your passport and visa, and a print out of your I-94 arrival and departure record, and fill out a W8-BEN form if you have not done so already. We understand these requirements can feel confusing, and Kasey will be there to assist you with any questions.

Following the workshop on Monday April 6, we will visit the Advanced Photon Source synchrotron at Argonne National Lab to learn about studying fossils using high energy radiation technologies. Please make sure you have received approval from Argonne, which is a Dept. of Energy facility, for the visit. We will be traveling as a group on a chartered bus, which will take off from the Essex Inn at 800 S Michigan Ave. – please be there promptly as rush hour traffic in Chicago can be challenging.

Welcome to Chicago,

Peter Makovicky, Zhexi Luo, Pat Herendeen, & Kasey Mennie

## WORKSHOP SCHEDULE

SATURDAY, APRIL 4

8:00-8:45 Catered breakfast in West Door Lobby area with registration (please pick up name tags, provide documents for Kasey, etc.)

8:45-9:00: Introductory remarks by P. Makovicky and Zhe-Xi Luo

9:00-9:10: Short address to attendees by NSF officers

9:10-9:15 Mark Westneat (University of Chicago): FuturePhy: The future of comparative biology in a phylogenetic age

9:15-noon: Session I - TIMING AND RISE OF MODERN BIODIVERSITY AND ECOSYSTEMS.

Presentations Sub-theme 1: Key Mesozoic Lagerstätten of China:

- 1) Su-Chin CHANG (Hong Kong Univ.) "High-precision Ar/Ar ages for the Daohugou, Yanliao and Jehol Biotas"
- 2) Corwin Sullivan (IVPP) "The Mid-Late Jurassic Daohugou Biota of northeast China and the rise of modern tetrapod diversity"
- 3) Dayong JIANG (Peking University) "Triassic marine reptile faunas in south China: Their biodiversity, geological age, sequence and significance to the biotic recovery after the P/T mass extinction"
- 4) Zhe-Xi LUO (Univ. of Chicago) "Turnover In Mammalian Evolution During the Jurassic and Early Cretaceous"
- 5) Yong-Dong WANG (NIGPAS) "Floral and ecological changes across the Triassic–Jurassic transition in the Sichuan Basin, SW China"
- 6) Shuzhong SHEN (NIGPAS) "The terrestrial end-Permian mass extinction in South China"

Panelists: Baoyu JIANG, Olivier Rieppel, Chengfu ZHOU, Gongle SHI

Presentations Sub-theme 2 Assembly of ecosystems from the past to the present.

- 1) K. Angielczyk (FMNH) "Using Trophic Network Models to Address Questions in Paleontology and Paleoecology?"
- 2) J. Mitchell (UChicago) "The timing and rate of the ecological diversification of birds"
- 3) D. Grossnickle (UChicago) "Disparity patterns in therian mammals across the K-Pg boundary."
- 4) Conrad Labandeira (NMNH-SI) - "The Surprisingly Modern Aspect of Insect Herbivory, Pollination and Mimicry during the Mid-Mesozoic of Northeastern China"

Panelists: P. Herendeen, Cheng QUAN, Xiangdong WANG,

Noon - 1:30PM: Lunch, set up posters in LH II

1:30-4:30 Session II: THE RISE OF MODERN DIVERSITY: COMBINING  
PALEONTOLOGICAL AND MOLECULAR PERSPECTIVES

Presentations- Sub-theme 1 Bird Origins and Diversification

- 1) Xing XU (IVPP) – “Revisiting coelurosaurian phylogeny: consensus, problems and perspectives”
- 2) Paul Sereno (Univ. of Chicago) "On Characters and Constraints in the Evolution of Vertebrate Flight"
- 3) Peter Makovicky (FMNH) “Macroevolutionary patterns in the origin of birds”
- 4) Sushma Reddy (Loyola University Chicago) - "Looking back in time: the molecular perspective on the tempo of avian diversification"
- 5) Julia Clarke (UT Austin) – “Phylogenetic and functional constraints on the bony and feathered wing.”

Panelists: Jingmai O’Connor, N. Adam Smith, Corwin Sullivan, Quanguo LI,  
Matthew Shawkey

Presentations - Sub-theme 2 Combining fossils and molecules to understand ancient radiations:

1. Keqin GAO (Peking University) & Jianye CHEN (AMNH): “Fossil record and molecular phylogeny: origins of modern salamander clades”.
2. Chris Brochu (University of Iowa): "Resolving conflicts in crocodylian phylogeny from morphological and molecular data"
3. Dan Ksepka (Bruce Museum) "The Fossil Calibration Database: A New Resource for Divergence Dating"
4. Zhikun GAI (IVPP) “Combining molecular and fossil perspectives on rise of jawed vertebrates”

Panelists: M. Coates, Bob Martin, Rick Ree, N. Adam Smith, Sterling Nesbitt, Xing XU,  
Zhe-Xi LUO

4:30PM-6:30 Poster session & social hour (see list of poster titles below)

6:30-8:00 PM dinner, Founders Room at FMNH. The Founders Room, which used to be the President’s office, is on the Museum’s ground floor near the South entrance. We will serve a buffet style dinner with both meat and vegetarian options.

SUNDAY, APRIL 5

8:00-9:00 Catered breakfast in West Door Lobby area with registration (name tags, document check, etc)

9:00 - 12:00 SESSION III: SEDIMENTOLOGY, TAPHONOMY AND THE STUDY OF FOSSILIZED SOFT TISSUES IN MAJOR LAGERSTÄTTEN

Presentations

- 1) Derek Briggs (Yale): "Ordovician Lagerstätten"
- 2) Baoyu JIANG (Nanjing University): "Extraordinary preservation of the musculoskeletal apparatus in the Early Cretaceous bird *Confuciusornis*"
- 3) Jingmai O'Connor (IVPP) – "The unusual soft tissue preservation of mature ovarian follicles in birds from the Early Cretaceous Jehol Lagerstätten"
- 4) Matthew Shawkey (Univ. of Akron): "Color reconstruction of fossil organisms: prospects and challenges."
- 5) Quanquo LI (China University of Geosciences Beijing): " The melanosomes in the vertebrate fossils from the Jehol Biota"
- 6) Elena Schroeter (North Carolina State University): "Exploring soft tissue preservation: What is preserved and how can we test?"
- 7) Pat Herendeen (Chicago Botanic Garden) – "Whole-plant reconstruction of an Early Cretaceous Cupressaceae"
- 8) Zhongjun YIN (NIGPAS)- "Exploring animal evolutionary history before Cambrian Explosion-perspective from Ediacaran Weng'an biota."

PANELISTS: Sue Kidwell, Carmen Soriano-Hoyuelos, Yanhong PAN

Noon - 1PM: Lunch, poster viewing

1:00-4:00 PM. Session IV. CLIMATIC AND BIOTIC EVOLUTION IN THE NEOGENE

Presentations

- 1) Xiaoming WANG (NHM LA) - "Grand challenges in the Critical Transitions: the Neogene perspective."
- 2) Susumu Tomiya (FMNH) - "Body size evolution in lagomorphs: the role of competition in macroevolution revisited".
- 3) Deng Tao (IVPP) "Replacement of the Pliocene mammals from Tibetan Plateau in the Quaternary fauna of northern China"
- 4) Dong WEI (IVPP) "The biochronological framework of *Homo erectus* from the Early to Middle Pleistocene in China"
- 5) Sukuan HOU (IVPP) "Giraffidae from the Linxia Basin, Gansu Province, China"

Panelists: Pat Herendeen, Wang Xiaoming, Lu Yao, Rick Ree, Yaowu Xing, Cheng Quan

4:00-4:15 Concluding remarks, wrap-up

4:15-5:30 Poster session and social (3/4) hour

6:00 - 8:00 Dinner at Flo & Santo's restaurant at 1310 S Wabash Ave (10 min walk from museum/ hotel).

MONDAY APRIL, 6

8:00 Bus pick-up from Essex Hotel, drive to Argonne National Labs

9:00 Registration at gatehouse

Seminars

9:15 Introduction to APS. Linda Young (APS).

9:30 1-ID. Diffraction tomography. John Almer (APS)

9:45 Virtual histology of fossil flowers. Pat Herendeen (Chicago Botanic Garden).

10:00 2ID. Nanofluorescence. Stephan Vogt (APS).

10:15 8BM. Microfluorescence/Large field of view elemental mapping. Lydia Finney (APS).

10:30 13BM. Microtomography. Mark Rivers (APS).

10:45 32ID (TXM). Nanoimaging. Vincent de Andrade (APS).

11:00 2BM. Microtomography. Carmen Soriano (APS).

11:15 What can we learn about dinosaur biology using high energy X-radiation? Peter Makovicky (FMNH).

11:30 Tully monster project at APS. Scott Lidgard (FMNH).

11:30-1 Tour of facility

1PM-2PM: Lunch at APS Guest House.

2PM – Bus will drive back to Essex Inn. Participants can enjoy city, pack, travel, etc. The Essex Inn is very close to landmarks and cultural institutions.

## POSTERS

Posters will hang in Lecture Hall 2 for the duration of the workshop. We will provide adhesive strips for you to hang posters.

Sterling Nesbitt (VTU) “Archosaurs from the Triassic of China help root the archosaur tree”.

Yanhong PAN “Biostratigraphic analysis of *Lycopera* beds from the Early Cretaceous Yixian Formation, western Liaoning, China”

Cheng JI (NIGPAS) “Phylogeny of the Ichthyopterygia”

Rudyard Sadleir (St Xavier University) “Comparative mass estimate methods of 3D digital models of ornithischian skeletons and gastroliths”

N. Adam Smith (FMNH) “The positive effects of combining neontological and paleontological data on estimates of body mass evolution: an example using the Pan-Alcidae (Aves, Charadriiformes)”

Chang-Fu ZHOU (Shenyang Normal Univ.) "Turtle assemblage of the Jehol Biota in Northeast China"

Yaowu XING (FMNH) TBA “A new Cenozoic plant fossil database”

Stephanie Baumgart (Univ. of Chicago): “Wing Pneumaticity in Modern Birds Compared to a Cretaceous Pterosaur”

David Grossnickle (Univ. of Chicago) "Exploring disparity and dietary patterns of Mesozoic mammals."

CONFIRMED LIST OF PARTICIPANTS (more to come)

<b>Participant</b>	<b>Institution</b>
Derek Briggs	Yale University
Julia Clarke	Univ. of Texas at Austin
Chris Brochu	Univ. of Iowa
Matthew Shawkey	University of Akron
Conrad Labandeira	Smithsonian Institution
Chengfu ZHOU	PMOL-Shenyang Normal University
Keqin GAO	Peking Univ.
Xiaodong WANG	Nanjing Institute of Geology and Paleontology - PI
Shuzhong SHEN	Nanjing Institute of Geology and Paleontology
Yongdong WANG	Nanjing Institute of Geology and Paleontology
Junxuan FAN	Nanjing Institute of Geology and Paleontology
Yanhong PAN	Nanjing Institute of Geology and Paleontology
Fangchen ZHAO	Nanjing Institute of Geology and Paleontology
Zongjun YIN	Nanjing Institute of Geology and Paleontology
Cheng JI	Nanjing Institute of Geology and Paleontology
Guangxu WANG	Nanjing Institute of Geology and Paleontology
Bo CHEN	Nanjing Institute of Geology and Paleontology
Xiaoming WANG	Natural History Museum-Los Angeles
Baoyu JIANG	Nanjing University
Xing XU	Institute of Vertebrate Paleontology and Paleoanthropology
Jingmai O'Coonor	Institute of Vertebrate Paleontology and Paleoanthropology
Corwin Sullivan	Institute of Vertebrate Paleontology and Paleoanthropology
Tao DENG	Institute of Vertebrate Paleontology and Paleoanthropology co-PI
Zhikun GAI	Institute of Vertebrate Paleontology and Paleoanthropology
Wei DONG	Institute of Vertebrate Paleontology and Paleoanthropology
Sukuan HOU	Institute of Vertebrate Paleontology and Paleoanthropology
Su-Ching CHANG	Hong Kong University
Quanquo LI	China University of Geosciences
Daniel Ksepka	Bruce Museum
Jianye CHEN	AMNH
Dayong JIANG	Peking U
Cheng QUAN	Jilin University
Sterling Nesbitt	Virginia Tech

Mark Norell	AMNH
Xia WANG	UT Austin
Zhiheng LI	UT Austin

NSF OFFICERS

H. Rich Lane	NSF
Chris Liu	NSF

CHICAGO-BASED PARTICIPANTS

<b>P. Makovicky</b>	<b>FMNH (PI)</b>
Zhe-Xi LUO	Univ. of Chicago
Pat Herendeen	Chicago Botanic Garden
Jon Mitchell	FMNH
Olivier Rieppel	FMNH
Dave	
Grossnickle	Univ. of Chicago
Scott Lidgard	FMNH
Carmen	
Sorian-	
Hoyuelos	APS, Argonne National Lab
N. Adam	
Smith	FMNH
Rudyard	
Sadleir	St. Xavier Univ.
Sue Kidwell	Univ. of Chicago
Mark Westneat	Univ. of Chicago
Michael Foote	Univ. of Chicago
Sushma Reddy	Loyola University Chicago.
Mike Coates	Univ. of Chicago
Rick Ree	FMNH
Paul Sereno	Univ. of Chicago
Yaowu XING	FMNH
Elena	
Schroeter	North Carolina State Univ.
Stephanie	
Baumgart	Univ. of Chicago
Fabiany	
Herrera	Chicago Botanic Garden
Bhart-Anjan	
Bullar	Univ. of Chicago/ Yale University
Lauren	
Conroyd	Univ. of Chicago
Lisa Zago	Univ. of Chicago
Nicholas	
Crouch	UIC
Roy Plotnick	UIC
Robert Bessett	St Xavier University