2021 KSMB 학술대회 일정

8월 26일 (목)

16:00-17:40 General Session A1: Infectious Disease Modeling I

① Mathematical modeling of COVID-19 epidemic in the Republic of Korea considering heterogeneous transmission (Youngsuk Ko)
② Modeling the Impact of Rapid Diagnostic Tests and Tafenoquine on the Plasmodium Vivax Malaria Burden in North Korea (Jiyeon Suh)
③ Mathematical modeling of COVID-19 in the Republic of Korea and scenario-based study for the estimation of herd immunity achievement (Jongmin Lee)
④ The impact of the Covid-19 on Tuberculosis in South Korea (Boyeon Kim)

16:00-17:40 General Session A2: Mathematical Modeling of Biological Systems

① Reaction-advection-diffusion competition models under lethal boundary conditions (Kwangjoong Kim)
② First passage time approach reveals sources of noise in the timing of intracellular events (Seokjoo Chae)
③ Optimal Control for Oncolytic Virus Treatment (Taeyong Lee)

16:00-17:40 General Session A3: Modeling and Data Analysis in Medical Science

① Atorvastatin-mediated rescue of cancer-related cognitive changes in combined anticancer therapies (Junho Lee)
② Mathematical model of STAT signaling pathway in cancer development and optimal control approaches (Donggu Lee)
③ Data analysis of patient-specific lifelogging obtained from wearable devices (Tae-Rin Lee)
④ Computer simulation of blood flow in the cerebrovascular structure of brain (Hyeryoung Cho)
8월 27일 (금)

09:00-10:40
Special Session B1: Medical Mathematics in Data Science and Applications (Organizer: Hyojung Lee)

① Modeling for Mathematical Biology Potential epidemiologic indicators in the infectious disease control and their future use (Changhoon Kim)
② Recent works in Division of Medical Mathematics at NIMS (Hyoung Suk Park)
③ Approach to solve the mathematical problems using medical data (Hyoung Lee)
④ Application of a Virtual Alignment Method to the dental prostheses and diagnosis (Kyoungtaek Jun)

10:40-10:50 Break

10:50-11:00
Opening Remarks
(KSMB 회장)

11:00-11:50
Plenary Lecture I: Application of Artificial Intelligence in Medical Field (Speaker: Do-Young Kang)
12:00-13:30  Break

13:30-15:10  Special Session C1: Mathematical Analysis and Methods in the Dynamics of Biological System: Cancers and Circadian Clock I  
(Organizer: Yangjin Kim)

  ① Mathematical and computational modeling for cancer treatment (Eun jung Kim)  
  ② Oscillatory timeseries data sheds light on molecular mechanisms (Jae Young Kim)  
  ③ Mathematical modeling and computational simulation of a cytokine shield formation of senescent tumor cells (Chaeyoung Lee)  
  ④ Reducing the risk of accumulating mutations via cell competitions in a hierarchical tissue (Hye Jin Park)

13:30-15:10  Special Session C2: Population Model  
(Organizer: Tae-Soo Chon, Young-Seuk Park)

  ① Recent Trends of Data-Driven Models in Ecology (Young-Seuk Park)  
  ② A spatially explicit model applied to nutria (Myocastor coypus) population dispersal in field conditions in Korea (Nam Jung)  
  ③ Predicting dispersal of invasive sika deer (Cervus nippon) in a novel group-based model (KyoungEun Lee)  
  ④ Individual-based simulation for wild boar (Sus scrofa) dispersal and disease transmission in linking with behaviour states defined by hidden Markov model (Thakur Dhakal)  
  ⑤ Hidden Markov model applied to behavioural states in wild boar (Sus scrofa) movements in linking with self-organizing map (Tae-Soo Chon)

13:30-15:10  Special Session C3: Pharmacokinetic and Pharmacodynamic Model (PKPD)  
(Organizer: Il Hyo Jung)

  ① Development of physiologically based pharmacokinetic model of entrectinib in rats and humans (In-Soo Yoon)  
  ② A transit and fractional order derivative model of lapatinib (Jong Hyuk Byun)  
  ③ Can you tell how effective a COVID-19 prevention strategy is at elementary schools? (Yong-Jung Kim)  
  ④ Accurate Prediction of Drug Clearance in Liver (Yun Min Song)
15:10-15:20  Break

15:20-17:00  Special Session D1: Mathematical Analysis and Methods in the Dynamics of Biological System: Cancers and Circadian Clock II
(Organizer: Jae Kyoung Kim)

  1. PET tracing of biodistribution for orally administered 64Cu-labeled polystyrene in mice (Jin Su Kim)
  2. Mathematical Modeling for Pacemaker-neuron-dependent Molecular Rhythm Alteration by Drosophila Clock Mutant (Eui Min Jeong)
  3. Spatial Heterogeneity Mediated Treatment Response (Masud M A)
  4. Inference of stochastic dynamics in biochemical reaction networks by exploiting deterministic dynamics (Hyukpyo Hong)

15:20-17:00  Special Session D2: 정수생태계 변화 예측모델
(Organizer: Young-Seuk Park)

  1. 생물 모니터링 자료를 이용한 담수생태계의 먹이망 구축 (이다영)
  2. 국내 담수 어류의 45종과 멸종위기 어류 20종의 먹이원 분석 (지창우)
  3. 한강 수계 내 호소에서 저서성 대형무척추동물 및 수질에 대한 어류 군집 구성 변화 예측 (이대성)
  4. 해석가능한 기계학습 기법을 활용한 녹조현상의 예측 (신지훈)
  5. Delf3D 모델을 활용한 주암호 물순환 및 수질변동 특성 분석 (이정현)

15:20-17:00  Special Session D3: 의생명에 활용되는 데이터분석
(Organizer: Gangjoon Yoon)

  1. Computational approach to simulate microswimmers propelled by bacterial flagella (Wanho Lee)
  2. Machine learning approach using routine immediate postoperative laboratory values for predicting postoperative mortality (Yongkeun Park)
  3. Deep learning model for the prediction of EBV status in gastric cancer (Sangjeong Ahn)
  4. False promise of ending COVID-19 by vaccination without treatment (YongKuk Kim)
17:00-17:10  Break

Plenary Lecture II: Mathematical AI and COVID-19
17:10-18:00  
(Speaker: Hyung Ju Hwang)
Special Session E1: Mathematical Modeling of COVID-19 and Beyond  
(Organizer: Sunmi Lee)

① Collateral health effects of COVID-19 (Hee-Sung Kim)
② The effects of vaccination and Non-Pharmaceutical Interventions I on COVID-19 transmission dynamics in Korea (Jung Eun Kim)
③ Estimating the Basic Reproduction Number of COVID-19 on heterogeneous network (Sungchan Kim)
④ A Model-informed Reopening Strategy based on a Case Study of Ontario, Canada (Kyeongah Nah)

General Session E2: Infectious Disease Modeling II

① Impact of COVID-19 variants on the vaccination program in South Korea (Eunha Shim)
② Effects of social distancing on COVID-19 control in Korea based on age-structured modeling (Yongin Choi)
③ Risk assessment of HPAI on poultry farms in relation to migratory birds using a Maxent model (Mugyeom Moon)
④ Exploring the roles of vehicle transmission in inter-farm modelling for Foot-and-Mouth Disease (Slghee Kim)

General Session E3: Modeling in Ecology and Fisheries

① 자료가 제한된 상황에서 한국 남동해역 멸치(Engraulis japonicus) 자원에 대한 자원평가 방법 개발 (정동원)
② Prey-Induced Dispersal in Predator-Prey Model (Youngseok Chang)
③ The population dynamics of red eared slider in Korea (Yunju Wi)
④ Analysis of the invasive species spread using cellular automata classification and machine learning (Gyujin Oh)

Closing