

WELCOME TO:
DIFFUSE SYNCHROTRON
EMISSION IN CLUSTERS
OF GALAXIES
WHAT'S NEXT?

HORTUS

LEIDEN

23-27/10/2017



WORKSHOP MOTIVATION

- FULLY UNDERSTAND NON-THERMAL PHENOMENA IN CLUSTERS
- BRING TOGETHER OBSERVERS, THEORIST AND SIMULATORS
- TACKLE FUNDAMENTAL QUESTIONS
- HAVE FUN DISCUSSING!

WORKSHOP MOTIVATION

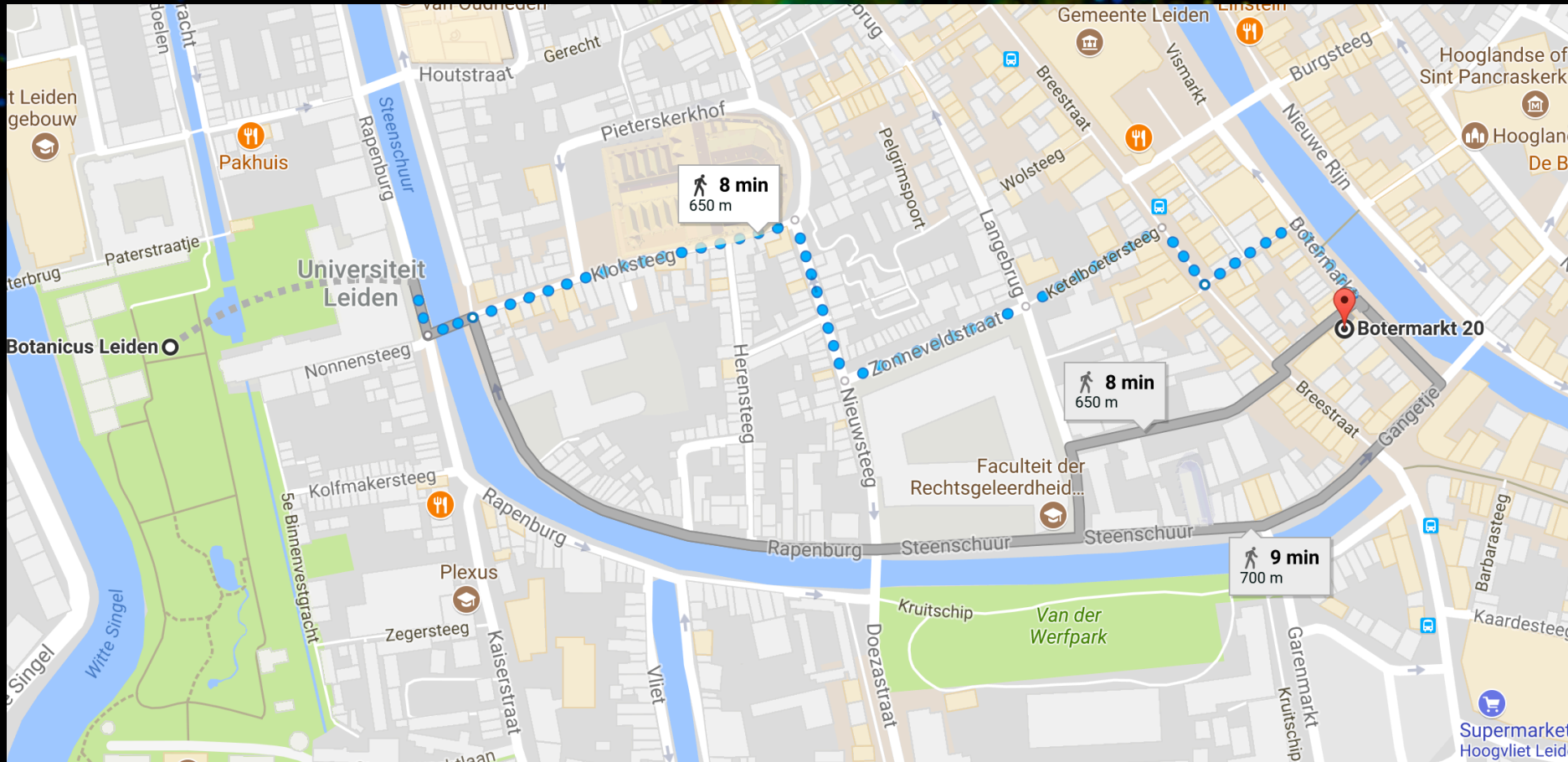
- What is the origin of the radio-emitting electrons and magnetic fields filling megaparsec volumes?
- As diffuse shock acceleration has been challenged by recent observations, what is then the main mechanism that accelerate particles in clusters? What are the important plasma process in the shock formation in high-beta plasma like the intra- cluster medium?
- Where are the seed electrons for turbulent re-acceleration coming from? What are the main characteristics of the turbulence field in clusters?
- What is the connection between radio jets from active galactic nuclei and fossil electrons that provide seed electrons to shock acceleration and turbulent acceleration? What are the nature and origin of radio ghosts and radio phoenix?
- Cosmic-ray protons must contribute to the relativistic particle population in clusters, what is then their exact role?
- Is high-energy non-thermal emission in X-rays, gamma rays or neutrinos detectable? What can we learn from current non-detections?
- What can we learn from observations of the thermal part of intra-cluster medium in X-rays and with Sunyaev-Zel'dovich effect? And from optical observations?
- What is the connection between the different kinds of synchrotron diffuse emission observed in clusters (halos, mini-halos, relics)? What is the connection of these with the dynamical state and evolutionary stage of clusters?

PRACTICALITIES

- INVITED REVIEWS (40+5 MIN), INVITED TALKS (20+5 MIN) AND CONTRIBUTED TALKS (15+5 MIN)
→ UPLOAD YOUR TALK!
- DISCUSSION SESSIONS AND AMPLE TIME TO SOCIALIZE AND DISCUSS FREELY
- **GUIDED DISCUSSION SESSIONS WITH INTRODUCTORY TALKS:**
 - **MAGNETIC FIELDS & POLARIZATION**
(INTRO BY A. BONAFEDE & D. RYU,
CHAIRS G. BRUNETTI, F. GOVONI)
 - **THEORY VS OBSERVATIONS**
(INTRO BY G. BRUNETTI,
CHAIRS A. BONAFEDE & M. HOEFT)
- **CONCLUDING TALK BY CRAIG SARAZIN**

PRACTICALITIES

- **LUNCH** IS PROVIDED HERE (ASK TO THE STAFF FOR SPECIAL MEALS!)
- **DINNER** @ BUDDHAS ON WEDNESDAY 25TH @ 7PM (ASK TO THE STAFF FOR SPECIAL MEALS!)



THANKS FOR COMING AND ENJOY THE WORKSHOP!

INVITED SPEAKERS

HIROKI AKAMATSU
KAUSTUV BASU
MARCUS BRÜGGEN
ROSSELLA CASSANO
TRACY CLARKE
SIMONA GIACINTUCCI
FEDERICA GOVONI
SVENJA JACOB
MELANIE JOHNSTON-HOLLITT
TOM JONES
HYESUNG KANG
MAXIM MARKEVITCH
PENG OH
CHRISTOPH PFROMMER
DONGSU RYU

LARRY RUDNICK
CRAIG SARAZIN
TIM SHIMWELL
LORENZO SIRONI
ANATOLY SPITKOVSKY
EMMA STORM
ANDRA STROE
VALENTINA VACCA
TIZIANA VENTURI
TESSA VERNSTROM
REINOUT VAN WEEREN
DANIEL WIK
IRINA ZHURAVLEVA
STEPHAN ZIMMER

SOC

GIANFRANCO BRUNETTI
ANNALISA BONAFEDE
SIMONA GIACINTUCCI
HYESUNG KANG
HUUB RÖTTGERING
FABIO ZANDANEL

LOC

JIRINA SALKOVA
ALEXANDRA SCHOUTEN-VOSKAMP
NATALIE WELLS
HUUB RÖTTGERING
FABIO ZANDANEL