

Workshop on Genomics

Český Krumlov
2014



objectives of this presentation

- information about the setting and logistics
- background about the Workshop
- establish an appropriate set of expectations

frequently asked questions

- Where is the restroom?
- Coffee breaks?
 - at 10:00, free coffee & tea (theatre), available at all times (computer lab)
- Internet?
 - Theatre Café, House of Prelate (computer lab)
- Where & when do I eat?
 - Workshop Google Map (12-14, 17-19)
- Where is the pub?
- Where is the computer laboratory?
 - walk after this session's coffee break
- How long will the materials on the web site be available?

who

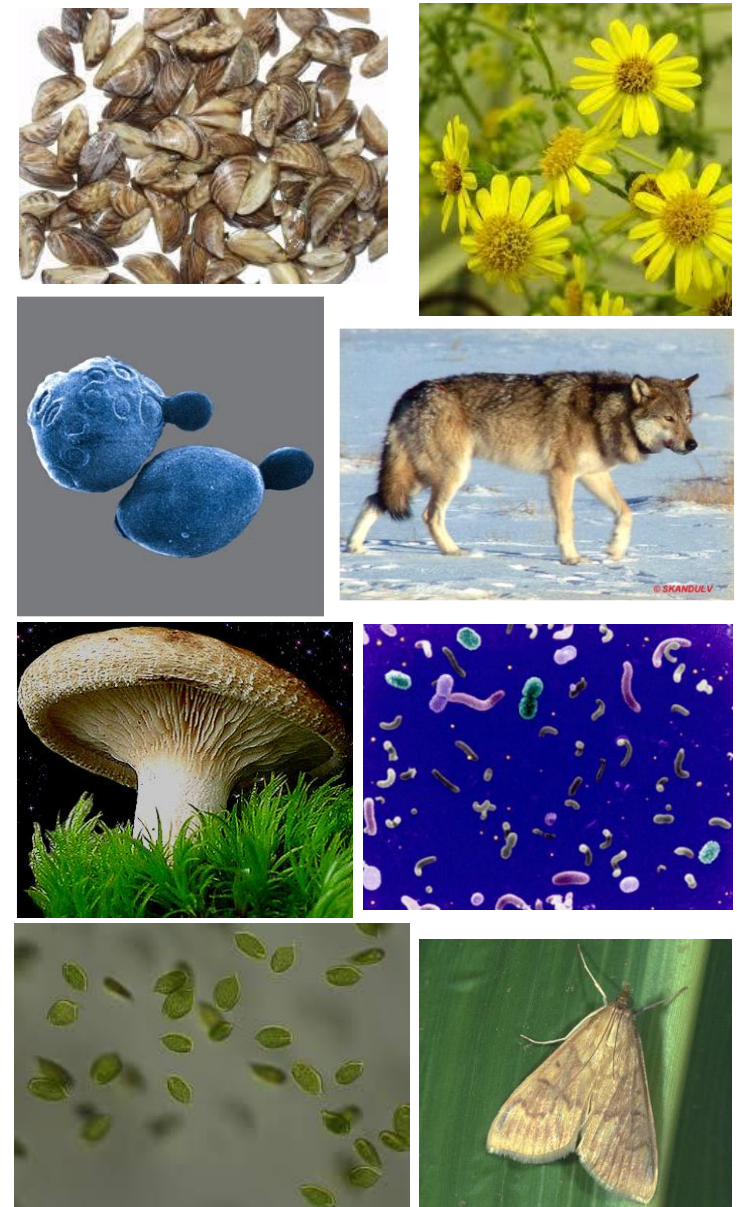


you

- proportions (n = 74)
 - 0.41 graduate students (0.39/0.52)
 - 0.38 postdoctoral scholars (0.32/0.34)
 - 0.10 staff and other (0.22/0.06)
 - 0.11 faculty/principal investigators (0.07/0.07)
- broad international representation (n=17)
 - Sweden (n=20), USA (n=12), Germany (n=8), United Kingdom (n=5), Czech Republic, Poland & Spain (n=4), Switzerland, Norway & France (n=3), Australia, Denmark & Finland (n=2), Austria, Belgium, Brazil, Netherlands (n=1)

research interests

- transcriptomics
- comparative genomics
- population genomics
- metagenomics
- phylogenomics
- evolutionary genomics
- ecological genomics
- ...and more



instructors and co-directors



Dag Ahrén
Shaw



Anders Lanzén



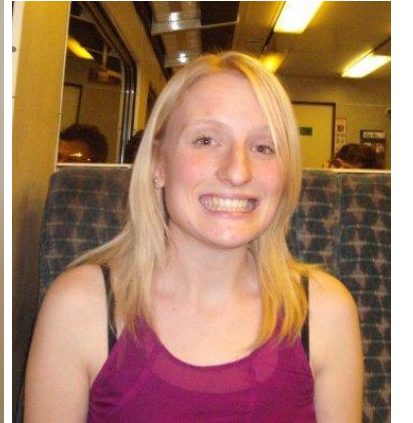
Guy Leonard



Melanie Melendrez



Daniel McDonald



Sophie



Scott Handley



Konrad Paszkiewicz

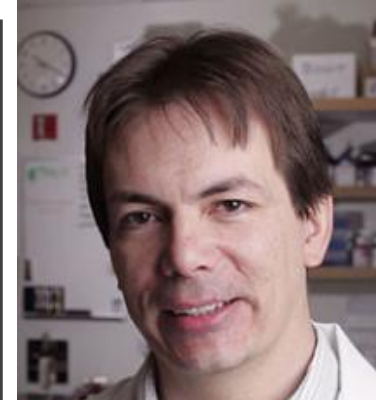


Karin Rengefors



Naiara
Rodríguez-Ezpeleta

faculty



partners & sponsors



Graduate Research School in Genomic Ecology
LUND UNIVERSITY, SWEDEN





- Interdisciplinary graduate school for PhD students in Genomic Ecology
- Genomic Ecology - interface between ecology & evolution, molecular biology and genomics
- GENECO was funded by the Swedish Research Council, from 2013 by the Faculty of Science, Lund University



GENECO Program

PhD students & content

100 past and current PhD students
Universities in Sweden, Norway, and Finland
Activities: Annual Winter & Summer Meetings, PhD courses, Mentor programs, travel grants

Courses

- Understanding population genetics
- Conservation & landscape genetics
Introduction to molecular ecology
- Quantitative PCR
Introduction to using R
Sequencing to assess microbial diversity:
high throughput sequencing and amplicon sequencing
RAD sequencing & analyses
Phylogenies using NGS data

see www.geneco.se

Sponsor of Workshop on Genomics



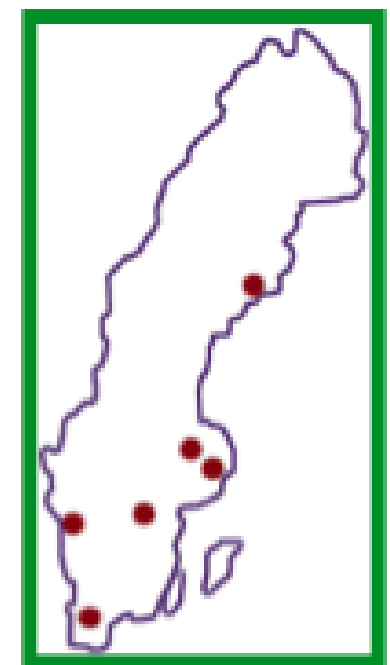
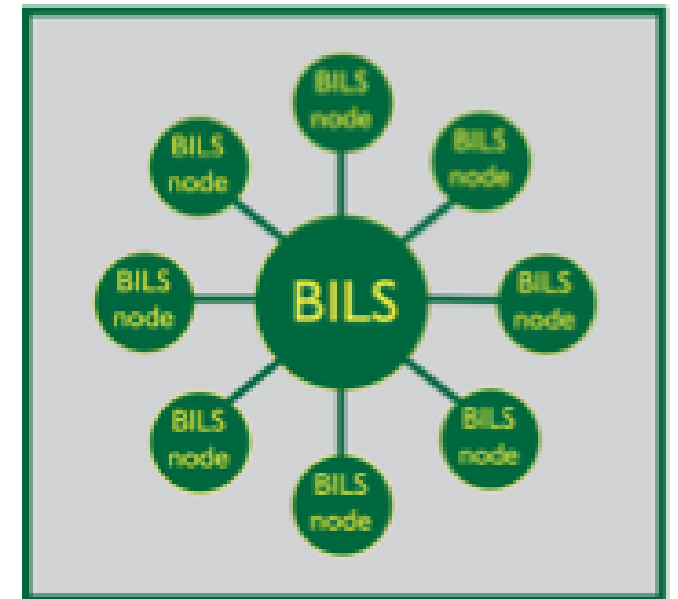
BILS — Bioinformatics Infrastructure for Life Sciences

Swedish national research infrastructure
supported by the Swedish Research Council

BILS provides bioinformatics support

BILS provides infrastructure and tools for
bioinformatics analyses

Bioinformatics network
nodes at each of the 6 large university cities
workshops & training



what this workshop is

background

Workshop on Molecular Evolution

- focused on molecular phylogenetics and population genetics
- Woods Hole, Marine Biological Laboratory, USA

- Workshop on Comparative Genomics
 - Czech Republic - January 2011
 - Fort Collins, USA - July 2011
 - Smithsonian Institution - November 2011

Lessons

- immersive and intensive
- workshop not a symposium
- isolated, idyllic, easy access

why Český Krumlov



important considerations

- relatively inexpensive
- relatively isolated
- idyllic
- conveniently and centrally located in Europe
- appropriate infrastructure
- outstanding support from the town

schedule

- Workshop website
 - <http://evomics.org>

Evolution and Genomics

immersive training opportunities

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2014 Workshop on Genomics, Cesky Krumlov

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Week 1



Monday

*Workshop and Cesky
Krumlov introduction*

*Laboratory introduction
Unix lab*



Tuesday

Sequencing Technology

*Advanced Unix lab
Participant discussions*



Wednesday

Study Design

*Data quality control lab
Participant presentations*



Thursday

Alignments

Genomics lab



Friday

Assembly

Assembly lab



Saturday

Metagenomics

Structural variation

Week 2



Monday

*Next-gen sequencing for
Non-Model Organisms*

STACKS lab



Tuesday

Clinical Metagenomics

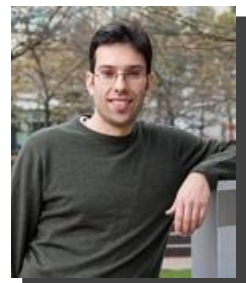
Metagenomics lab



Wednesday

Transcriptomics

*Transcriptomics lab
Crest lab*



Thursday

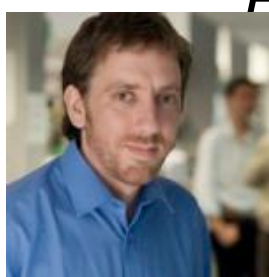
Evolutionary genomics

Python programming

Friday

Ecological genomics

*Evolution of pathogen
genomics*



participant presentations

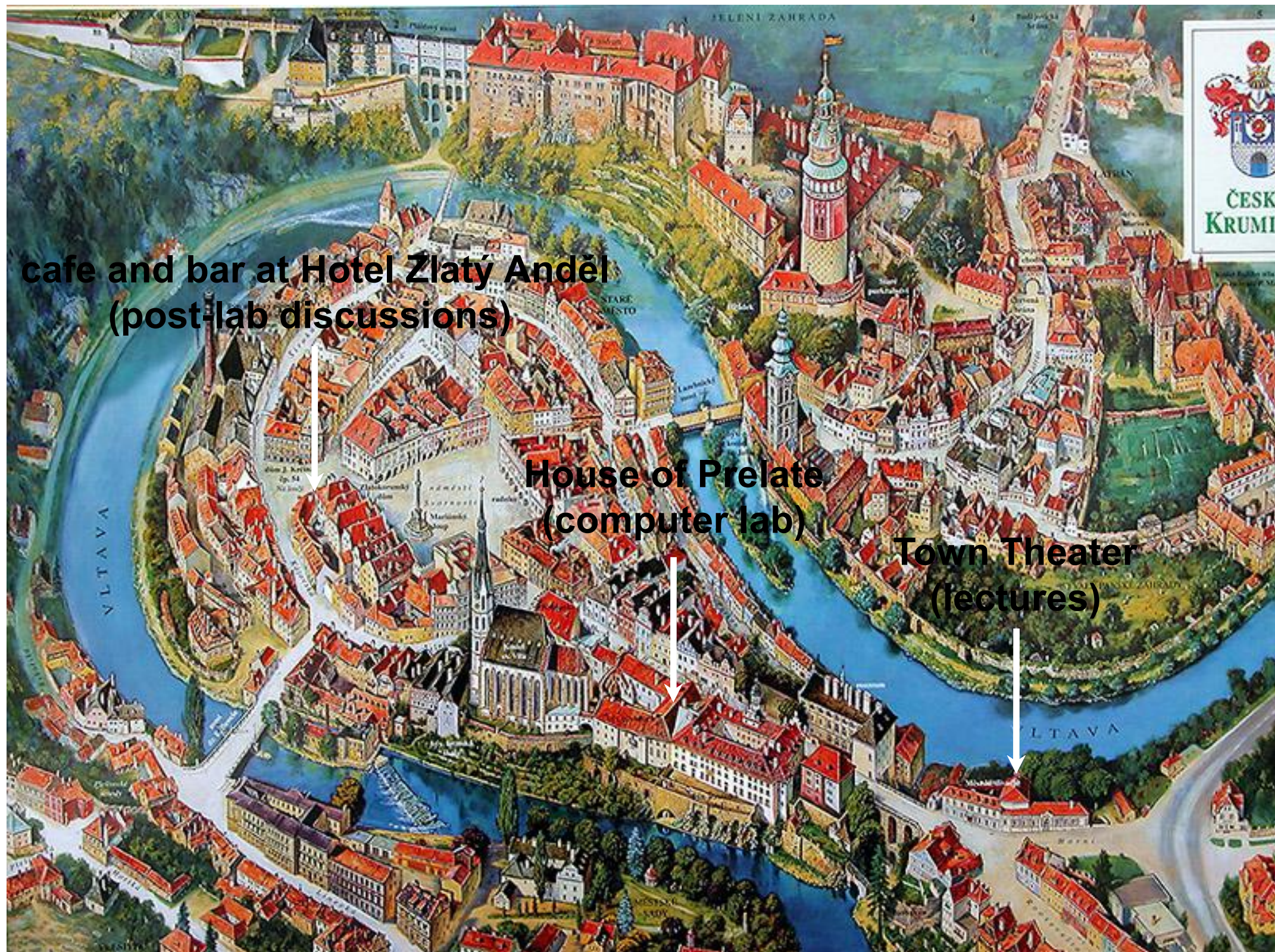
- goals:
 - get to know each other
 - learn about the other participant research interests and projects
 - identify common strategies, issues and problems
 - prepare concise questions for faculty members
- two stages (Tuesday & Wednesday)
 - prepare elevator pitch
 - small group discussions
 - participant presentations

Social Events

- Saturday
 - Meet at approximately 17:30 (Town Square) to take a group tour of Český Krumlov
 - Tour will finish at Eggenberg Brewery beer tasting & dinner
- Sunday
 - Information from Daniel Kintzl, CK Infocentrum
- More possibilities exist. Please visit the town Infocentrum for details

where

here



expectations

realistic expectations

- exhaustion
- frustration
- bioinformatics applications are moody
- >90 people on-line simultaneously
- you may not finish every exercise during the allotted session
- you will not become an expert in 2 weeks...

SO...

- take breaks
- get enough sleep
- be patient
- ask questions! (faculty, instructors, participants)
- work in pairs/groups
- open labs
- everything will be available on the web-site after you leave
-enjoy!

discussion opportunities

- extensive opportunities for discussions
 - with faculty
 - with instructors
 - with other participants
- faculty arrival and departure dates are on the web site



computer lab



House of Prelate

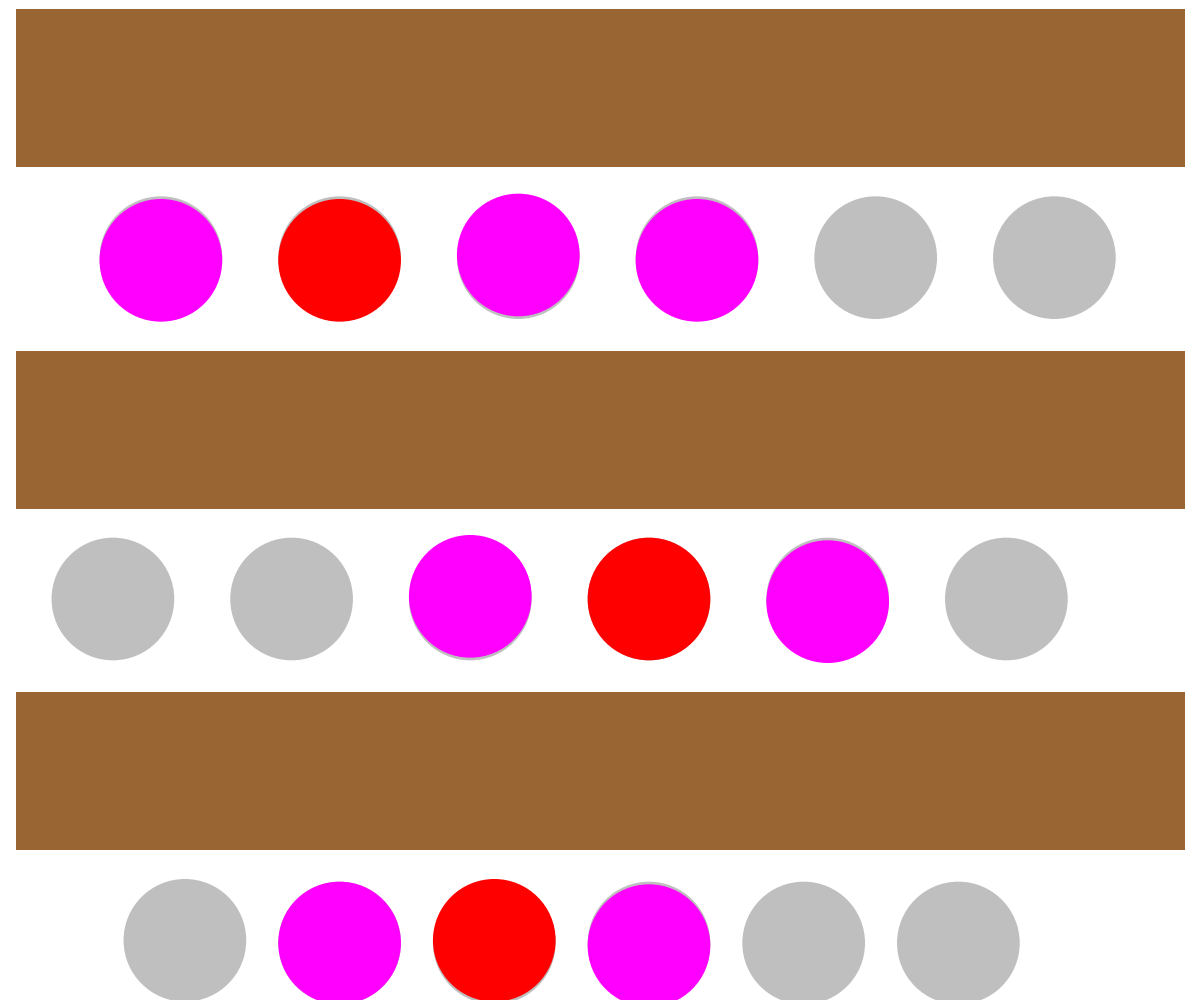
general lab policy issues

- no food or drink inside computer hall
- wipe feet before entering
- coats in coat room
- do not touch walls
- we have strict arrival and departure times



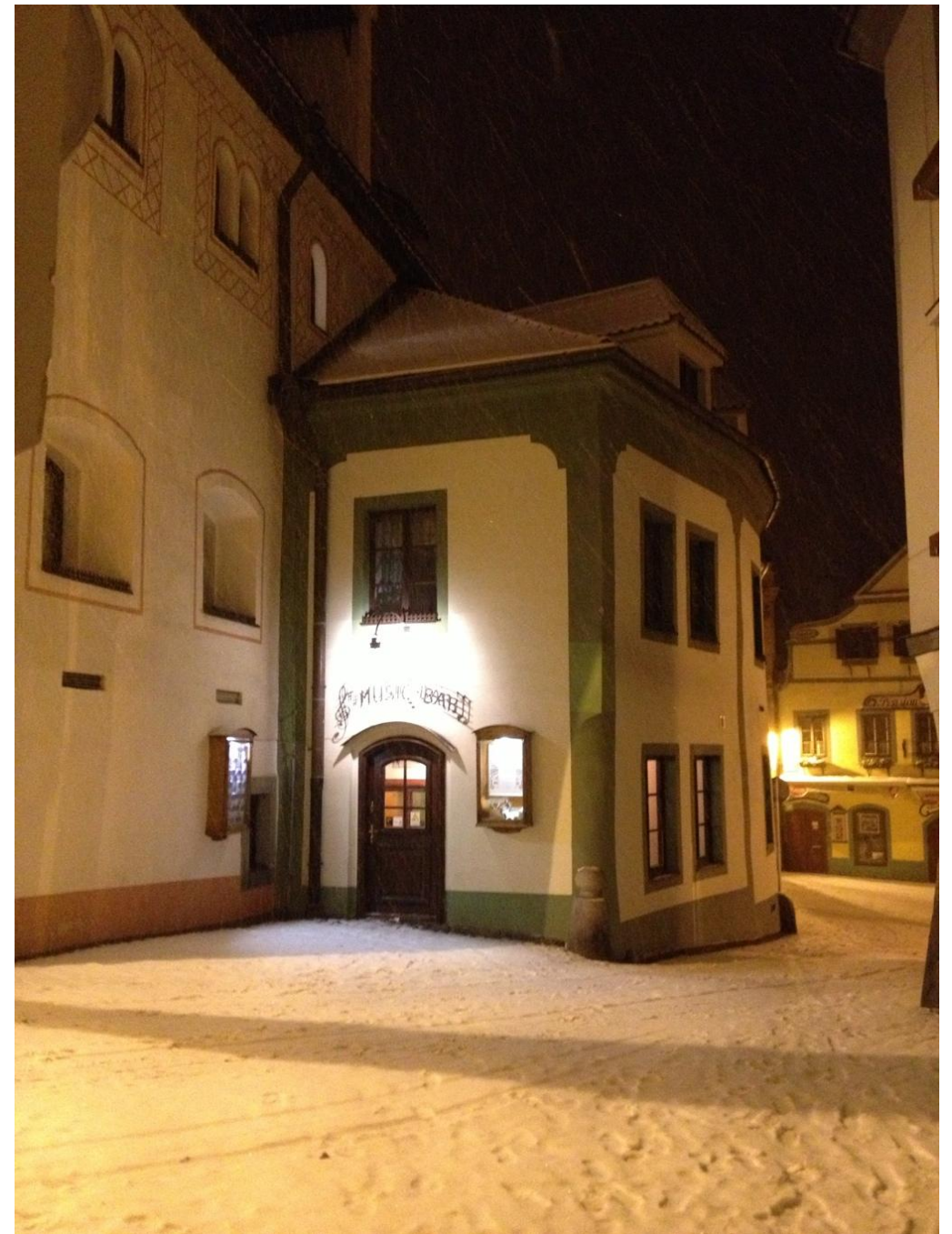
Laboratory Best Practices

- Work together in pairs/groups
 - Variations in computing power
 - Variations in expertise
 - Variations in patience



post-lab discussions

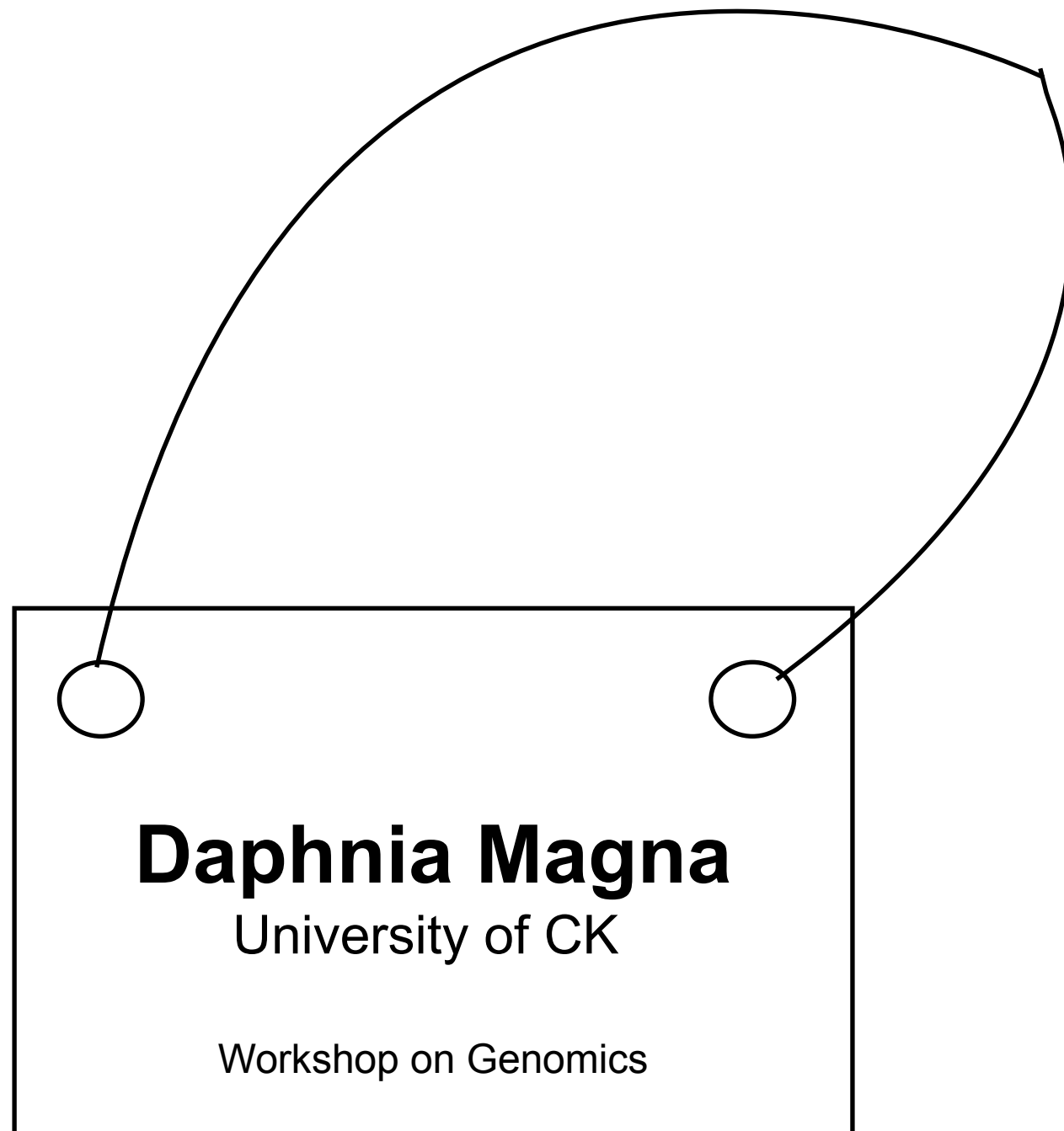
- an important feature of the Workshop
- Music Bar behind Hotel Zlatý Anděl



t-shirt competition

- <http://evomics.org/registration-form/t-shirt-competition/>
- the top designs will receive a very special gift
- fame, fortune! your design will be worn by people from around the world for years to come
- submit by FRIDAY

Please wear your name tag!



communication during workshop

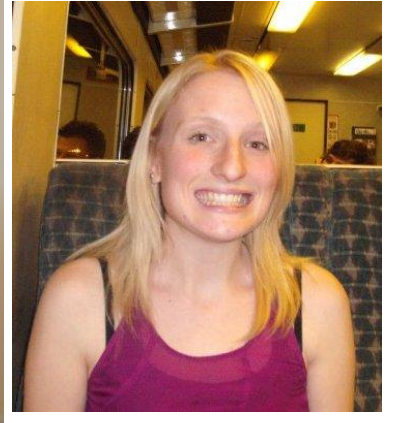
- workshop website: **evomics.org**
- Twitter: **#evomics2014**
- Facebook: **Workshop on Genomics**

next

- Information by Daniel Kintzl
- Coffee/tea break
- Walk over to House of Prelate
- start again at 14.00 (2 pm)
House of Prelate



thanks



Dag Ahrén Adam Bazinet

Anders Lanzén

Guy Leonard Melanie Melendrez Daniel McDonald Sophie Shaw



Scott Handley Konrad Paszkiewicz Karin Rengefors

Naiara
Rodríguez-Ezpeleta