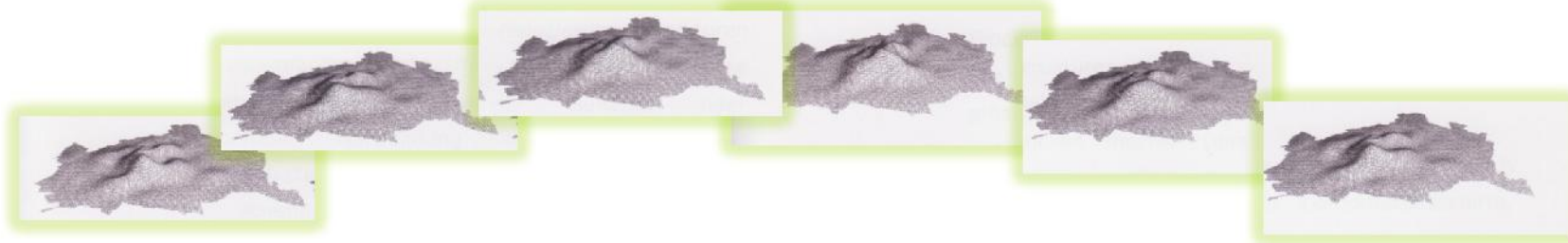


# Modelling the configuration and dynamics of urban space

## The City as a Process

O.Univ.Prof. DI Dr.phil. Franck (IEMAR)  
Ao.Univ.Prof. DI Dr.techn. Überhuber (ASC)  
DI Dr.techn. Frey (IVV)  
Univ.Ass. DI Hartl (IVV,IEMAR)



# Outline

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- General objective
- Proposal
- Output
- Contacts

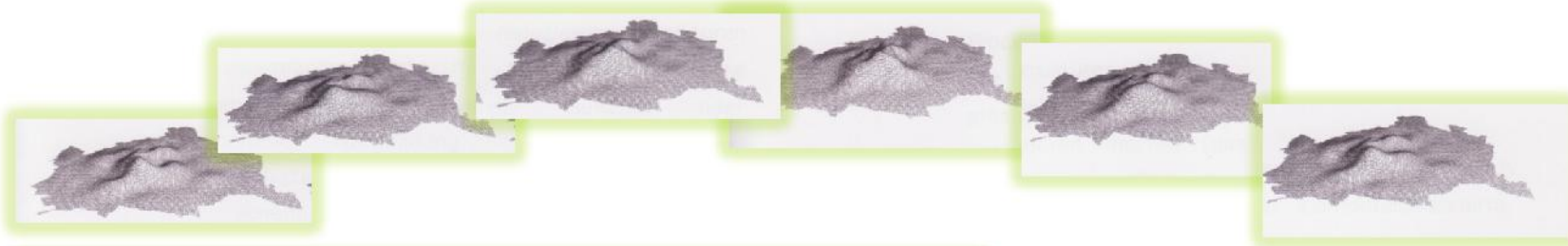


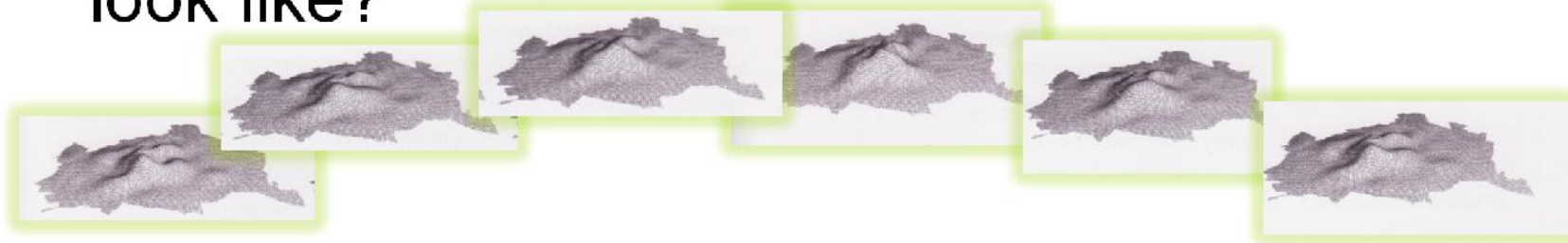
Abb. 211: Sequenz aus einem Tagesrhythmus der Bevölkerungsverteilung. (von links oben nach rechts unten: 0:00, 4:00, 8:00, 12:00, 18:00, 21:00)

by Faller, A., [www.projectspace.at](http://www.projectspace.at)

# General objective

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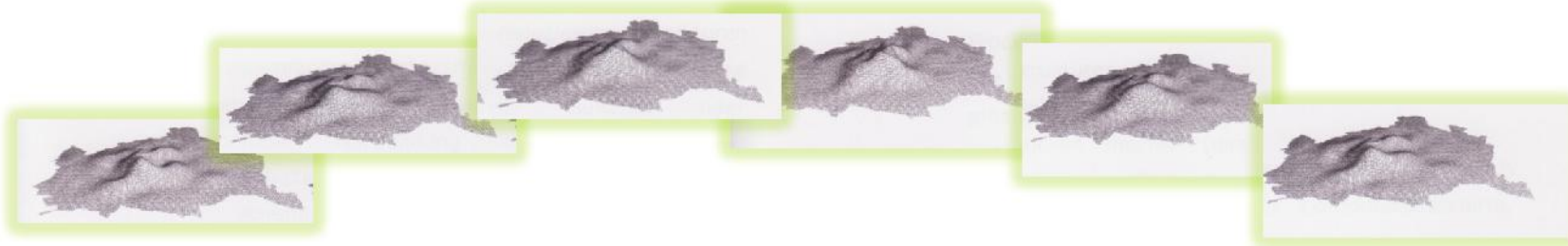
- Dealing with threats of global warming by reducing status quo CO2 emission
- Main causes:
  - **Cities' space uses**
  - **Cities' intra-urban traffic**
- The post-oil city will need to be walkable
- ...but how do sustainable settlement structures look like?



# Proposal

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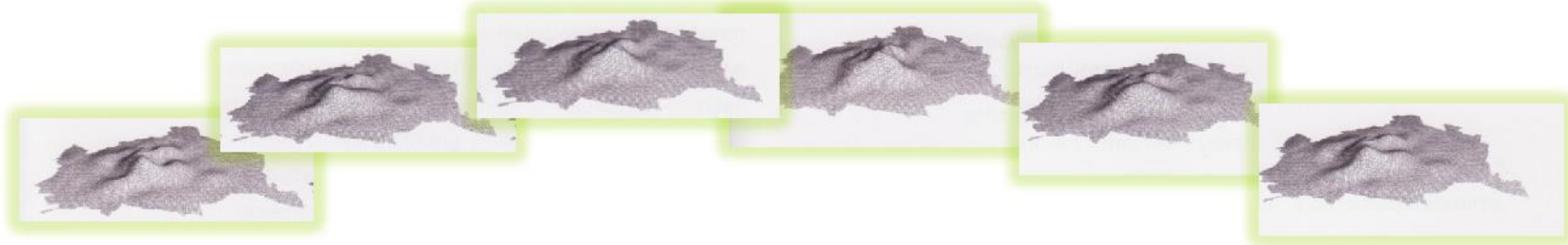
- The City is a process
- Cities' **space uses** are
  - not **stocks & flows** but **activity patterns**
  - Return to their **initial conditions**
  - Are **stable processes (rhythms)**
  - Basic rhythm: **rush hour traffic** (5 days per week!)
  - High potential for de-carbonisation



# Proposal

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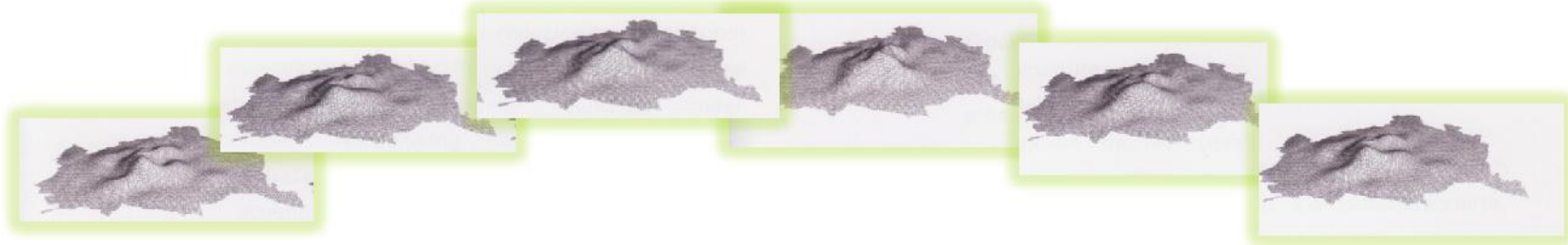
- The City is a process
- **Cities' rhythms**
  - Form a **hierarchically ordered, synchronized dynamic system**
  - May be **measured by dynamics**
  - Basic rhythm overarches shorter, daily rhythms
  - Weekly rhythm interrupts basic rhythm
  - ...



# Proposal

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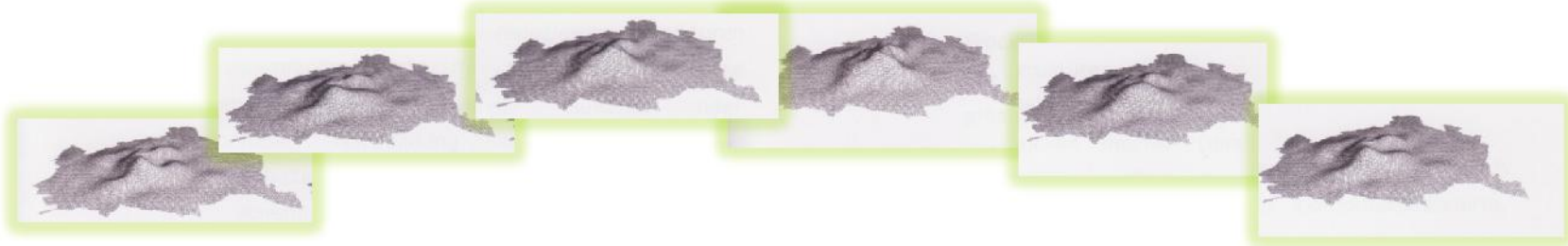
- The City is a process
- **Cities spatial structures**
  - arose due to processes of self-organization
  - **Dense packages, mutual access & thresholds**
  - **Ordering principle is a hierarchy of access**
  - Imply qualities of privacy & publicity respectively
  - Are **the space** where **rhythms take place**



# Proposal

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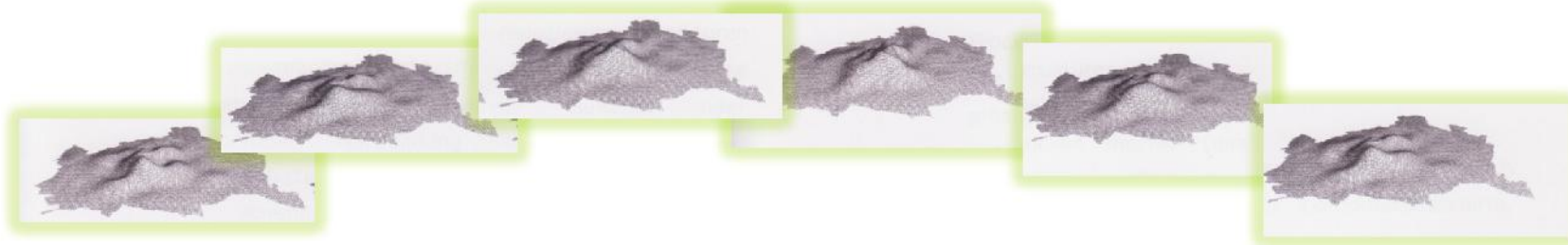
- The City is a process
- **Hierarchies of rhythms / urban structure**
  - Display **self-similar structural invariant**
  - on **different scales** in time and space
  - **Match** very well **together**
  - **High order rhythms manifest itself on high order urban structure**



# Output

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- Model of the City
  - Focus: City of **Vienna**
  - Top-down representation of **traffic flows**
    - Description, detailing, visualization of rhythms
    - On basic-intermediate-micro levels
  - Bottom-up representation of **urban structure**
    - Differentiated urban structure hierarchy public-private
  - **Analysis and display of Interweavement**



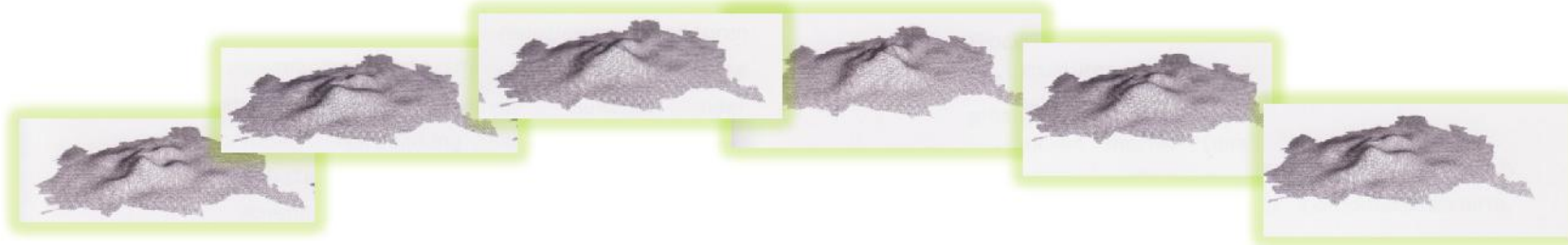


# Output

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## □ Model of the City

- Evaluation of **structural/temporal changes**
- **Detailed feasibility study** for description of cityrhythms in terms of **stability analysis**
- Display of **movement patterns on multiple levels**
- ...



# Proposal

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## □ Contacts

- O.Univ.Prof. Dipl.-Ing. Dr.phil. Georg Franck-Oberaspach
- Ao.Univ.Prof. Dipl.-Ing. Dr.techn. Christoph Überhuber
- Projektass. Dipl.-Ing. Dr.techn. Harald Frey
- Univ.Ass. Dipl.-Ing. Gerda Hartl

