

# KaVA SFRs project

Tomoya Hirota (on behalf of SFRs sub-WG)

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# 1. Summary of SFRs sub-WG

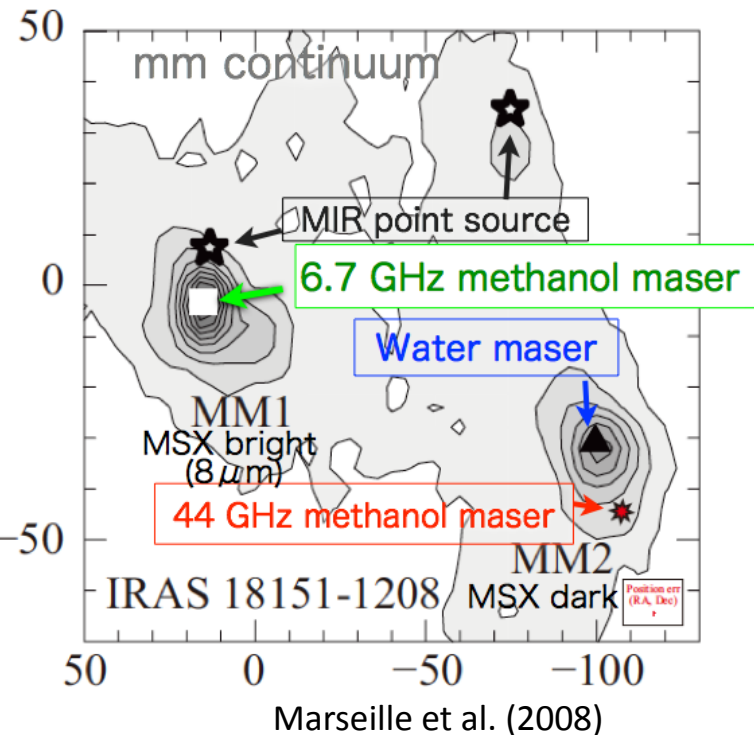
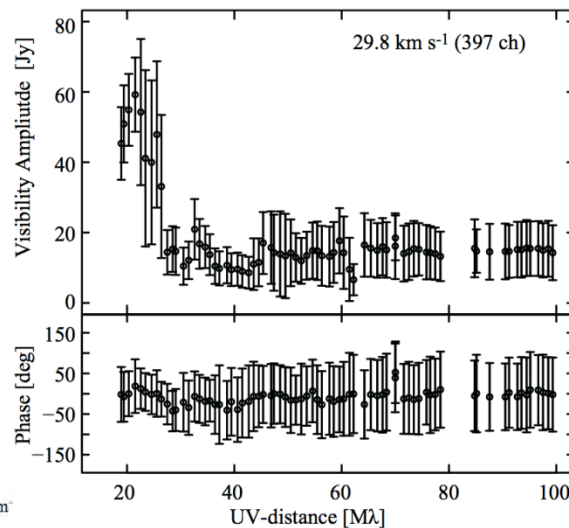
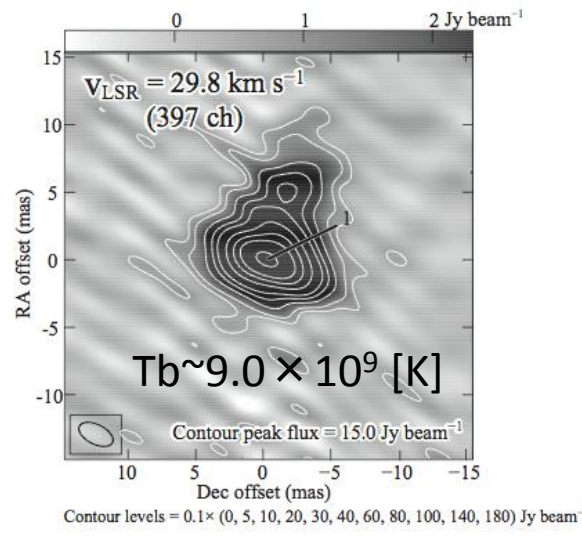
- Membership
  - Tomoya Hirota (co-PI in Japan)
  - Kee-Tae Kim (co-PI in Korea)
  - 10-15 active members
  - New members are always welcome !  
(especially students and young researchers)
- Previous meetings
  - Skype meeting ~once per month
  - F2F meeting in KaVA Science WS twice per year

# 1. Summary of SFRs sub-WG

- Discussion items
  - KaVA test observation plan/proposals
  - Results of data analysis including technical issues and science case
  - Follow-up proposal for VERA, KVN, JVN, and ALMA
  - Future workshop/symposium related to SFRs study
  - Large proposal

# 2. KaVA observations and results

- 44 GHz methanol maser observations since 2012
  - Test observations for ~15 brightest sources
  - First KaVA publication in 2014 (Matsumoto et al.)

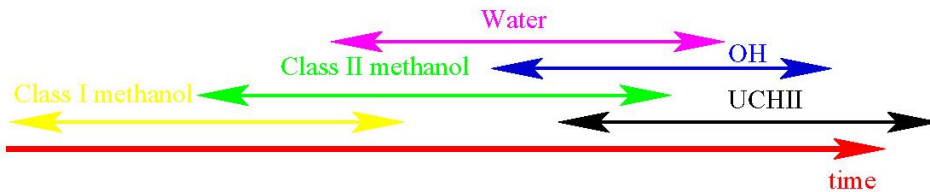


# 3. Large proposal

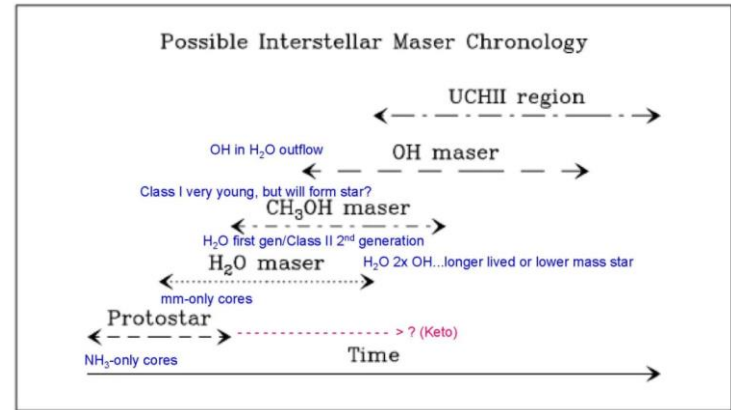
- One of the KaVA large proposals (AGN, AGB, SFR)
- Statistical study of high-mass YSOs with masers
  - 3D structures and their evolution traced by masers
  - Total 100 H<sub>2</sub>O/CH<sub>3</sub>OH maser sources (at maximum)
- Combination with multi-transition/wavelength
  - Archive data of centimeter, (sub)millimeter, infrared continuum and millimeter molecular line data
  - Follow-up proposals (e.g. ALMA cycle 3 filler project)

# 3. Large proposal

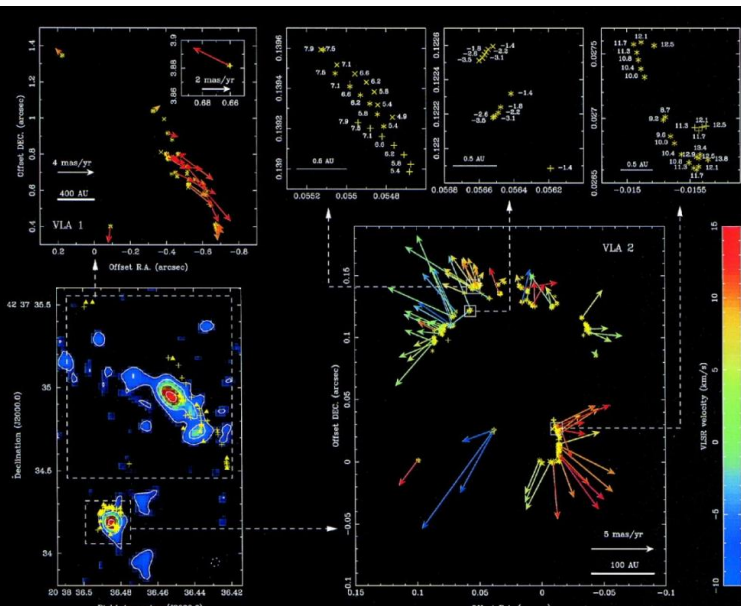
- Evolution of high-mass YSOs



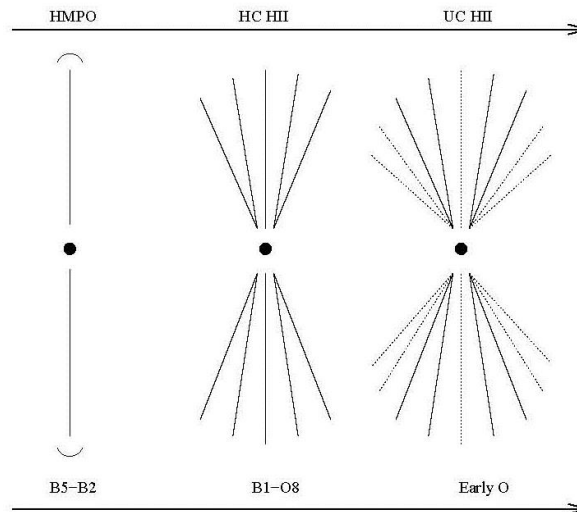
Reid (2007) vs Ellingsen (2007)



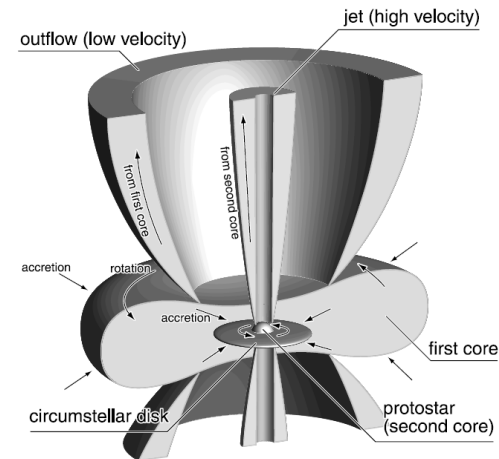
Torrelles et al. (2003)



Beuther & Shepherd (2005)



Machida et al. (2008)



# 3. Large proposal

- Current status
  - Reviewers requested major revision
    - Unclear science goals and strategy(long- and short-term)
    - Relationship between KaVA and follow-up observations
    - Relationship between main- and sub-projects
  - Proposal will be revised by the next DM in October
- **New members are always welcome!**
  - **Please contact Tomoya Hirota (JP)**  
**or Kee-Tae Kim (KR) at any time!**