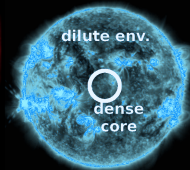


Do chemically-homogeneously evolving stars exist?

Dorottya Szécsi

Humboldt Fellow
University of Cologne

Normal OB-star:



TWUIN star:



Special Session SS17, EWASS, Lyon
28th June 2019



Alexander von Humboldt
Stiftung/Foundation

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Say cheese!



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Say chee~~e~~!



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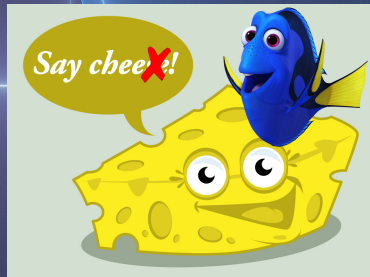


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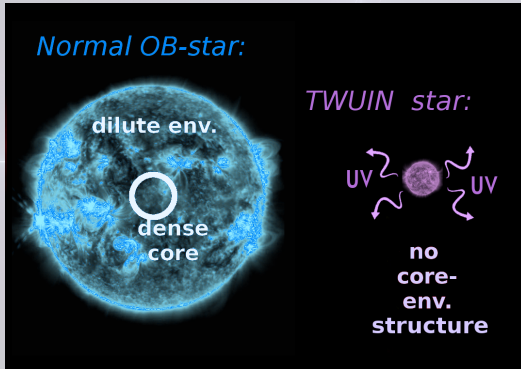
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What are they?

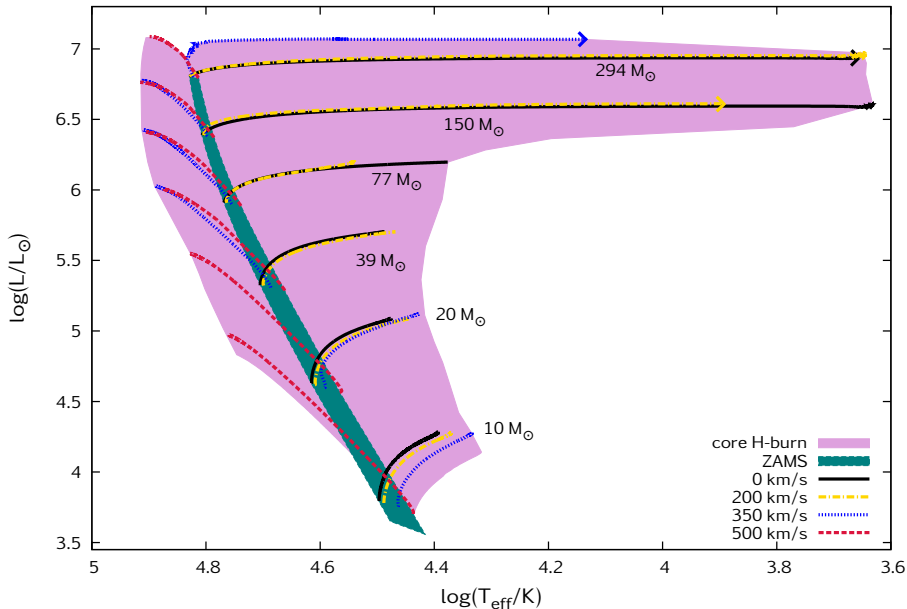
Dorottya Szécsi:
Do CHE stars exist?



Transparent
Wind UV-Intense
 \approx
Chemically-
Homogeneously
Evolving
 \approx
"Wolf-Rayet stars
in disguise"

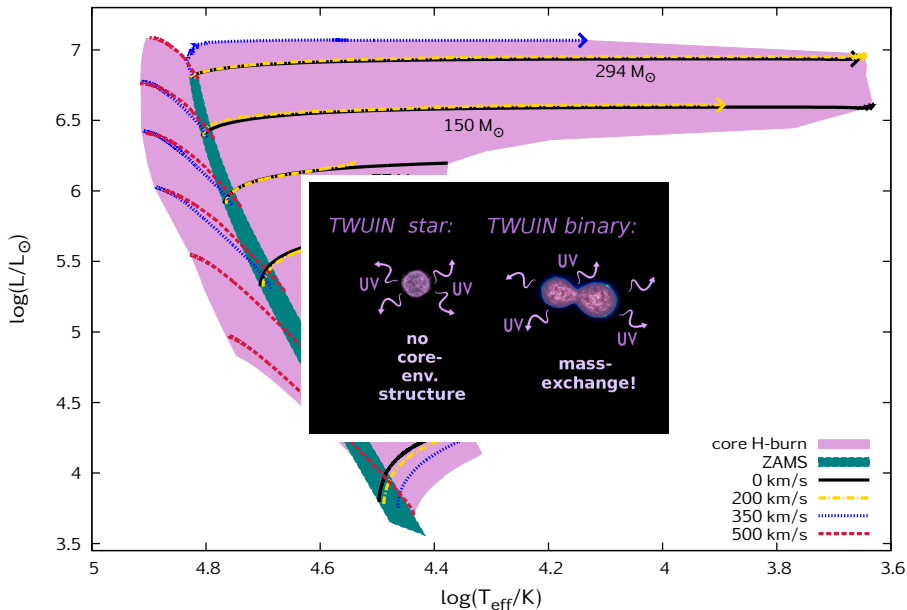
What are they?

Dorottya Szécsi:
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What are they?

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The literature

Dorottya Szécsi:
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The literature

Dorottya Szécsi:
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Theoretical models

Indirect evidence

Observational
(direct) evidence

Non-observations
or non-conclusive

The literature

Dorottya Szécsi:
Do CHE stars exist?

Theoretical models

Maeder'80,
Maeder+87,
Beech+89,
Yoon+06,
de Mink+09,
Brott+11,
Yoon+12,
Köhler+15,
Szécsi+15,
Marchant+16,
Song+16,
Marchant+17,
Aguilera-Dena+18,
Cui+18,
Schootemeijer+18,
Groh+19,

Goetberg+17,
Hainich+18,
Kubátova+19

Indirect evidence

Yoon+05,
Yoon+06,
Woosley+06,
Cantiello+07,
Meynet+07,
Dessart+08,
van Marle+08,
Szécsi+15b,
de Mink+16,
Mandel+16,
Marchant+16,
Eldridge+16,
Stanway+16,
Marchant+17,
Aguilera-Dena+18,
Szécsi+18,
Qin+19

Observational (direct) evidence

Martins+13,
Almeida+15,
Ramachandran+19

Non-observations or non-conclusive

Vink+17,
Garcia+19

The literature

Dorottya Szécsi:
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L-GRB

L-GRB & SN

ionization

GW

XRB

GC

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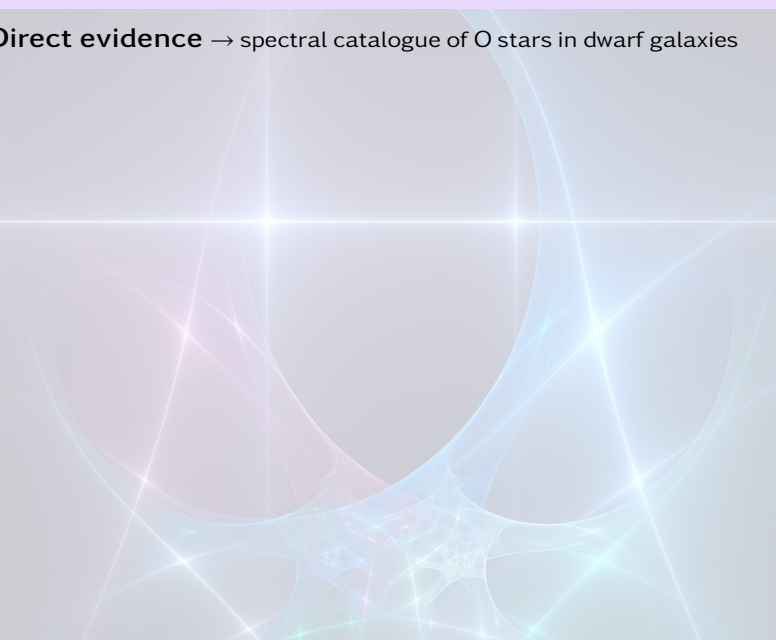
The background features a large, semi-transparent circle in the center. Overlaid on this are several thin, glowing lines in shades of blue, cyan, and magenta. These lines form a complex, web-like pattern that resembles a fractal or a network diagram. The overall aesthetic is futuristic and digital.

How to move on?

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*Dorottya Szécsi:
Do CHE stars exist?*

- **Direct evidence** → spectral catalogue of O stars in dwarf galaxies



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→ combine constraints from various fields of astrophysics

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