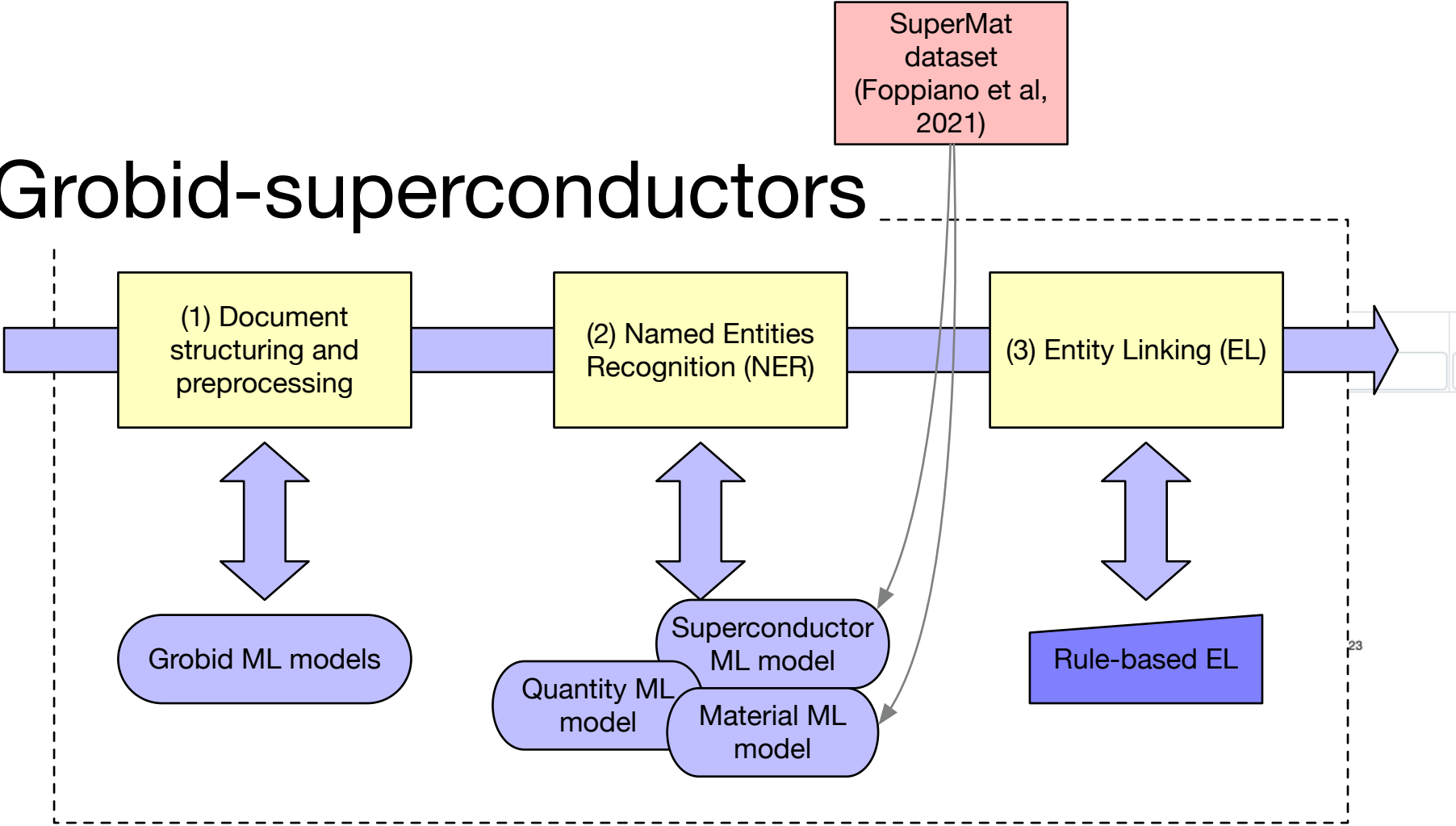


37700 PDF documents from arXiv ‘cond-mat.supr-cond’

Grobid-superconductors



40324 records
2052 triplets with “applied pressure”
3602 records with measurement methods

CaH 6				235 K
Fe 1.01 Se	-	-	-	37 K
WTe 2	-	-	-	7 K
-	-	-	-	90 K
K 0.8 Fe 1.78 Se 2	-	-	-	32 K
(Ti 0.59 Cs 0.26) Fe 1.9 Se 2	-	-	-	32 K
Ca 0.86 Pr 0.14 Fe 2 As 2	rare-earth	single-crystalline	-	51 K
HBr	-	-	-	27-34 K
HBr	-	-	-	27-34 K
x = 0.12	-	-	-	9.12 K
FeSe	-	-	-	8 K
6R- TaS 1.2 Se 0.8	-	-	-	2.07 K
undoped MgB 2	-	-	-	37.5 K

Applied Pressure	Section	Sub section	View Do
G			
1 GPa	body		
1 GPa	header		
150 GPa	body		
8.9 GPa	body		
16.8 GPa	body		
10 GPa	body		
1 GPa	body		
0.96 GPa	body		
1.9 GPa	body		
160 GPa	header		
160 GPa	body		
2.2 GPa			
16 GPa			
1.0 GPa			
1 GPa			

From LaH₁₀ to room-temperature superconductors

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Thermodynamic parameters of the [LaH₁₀](#) superconductor were an object of our interest. [LaH₁₀](#) is characterised by the highest experimentally observed value of the critical temperature: $T_C^* = 215$ K ($p_0 = 150$ GPa) and $T_C^* = 260$ K ($p_0 = 190$ GPa). It belongs to the group of superconductors with a strong electron-phonon coupling ($\lambda_e = 2.2$ and $\lambda_e = 2.8$). We calculated the thermodynamic parameters of this superconductor and found that the values of the order parameter, the thermodynamic critical field, and the [specific heat](#) differ significantly from the values predicted by the conventional BCS theory. Due to the specific structure of the Eliashberg function for the [hydrogenated](#) compounds, the qualitative analysis suggests that the superconductors of the $\text{La}_x\text{X}_{1-x}\text{H}_{10}$ -type (LaXH-type) structure, where $X \in [\text{Sc}, \text{Y}]$, would exhibit significantly higher critical temperature than T_C obtained for [LaH₁₀](#). In the case of [LaScH](#) we came to the following assessments: $T_C^* \in (220, 267)$ K and $T_C^* \in (263, 294)$ K, while the results for LaYH were: $T_C^* \in (218, 247)$ K and $T_C^* \in (261, 274)$ K.

The experimental discovery of the high-temperature superconducting state in the compressed [hydrogen and sulfur](#) systems [H₂S](#) ($T_C = 150$ K for $p = 150$ GPa) and [H₃S](#) ($T_C = 203$ K for $p = 150$ GPa)^{1,2} accounts for carrying out investigations, which can potentially lead to the discovery of a material showing the superconducting properties at room temperature. For the first time, the possibility of the existence of the superconducting state in [hydrogenated](#) compounds was pointed out by Ashcroft in 2004³. It was stated in his second fundamental work concerning the high-temperature superconductivity, following his first work written in 1968, in which he propounded the existence of the high-temperature superconducting state in [metallic hydrogen](#)⁴. The superconducting state in [metallic hydrogen](#) is induced by the conventional electron-phonon interaction. This fact made possible

Material	Critical temperature	Applied pressure
H 2 S	150 K	150 GPa
H 3 S	203 K	150 GPa
LaScH	52 K	150 GPa