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## Hot chemistry and physics in the planet-forming zones of disks

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# Appendix

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## Auxiliary figures

This appendix presents simulations of the spectra of all molecules considered here at higher spectral resolving power of  $R = 3000$  and  $R = 50000$ , appropriate for future instruments. In addition, spectra at the *Spitzer* resolving power of  $R = 600$  are included. All spectra are computed for  $T_{\text{ex}} = 200, 500$  and  $1000$  K,  $b = 5$  km s<sup>-1</sup> and a column density of  $1 \cdot 10^{16}$  cm<sup>-2</sup>.

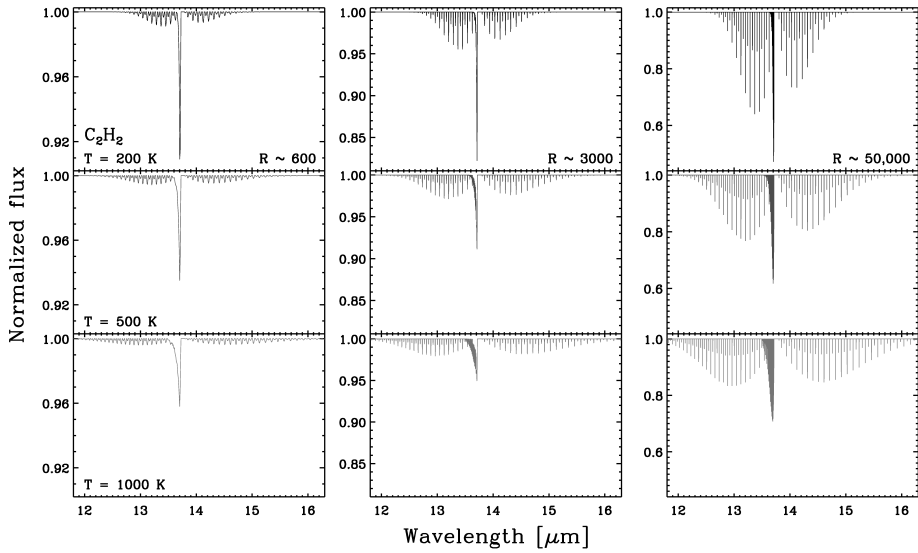


Figure 10 The synthetic spectrum of  $\text{C}_2\text{H}_2$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right). Note the different vertical scales for the different spectral resolving powers in this and subsequent figures .

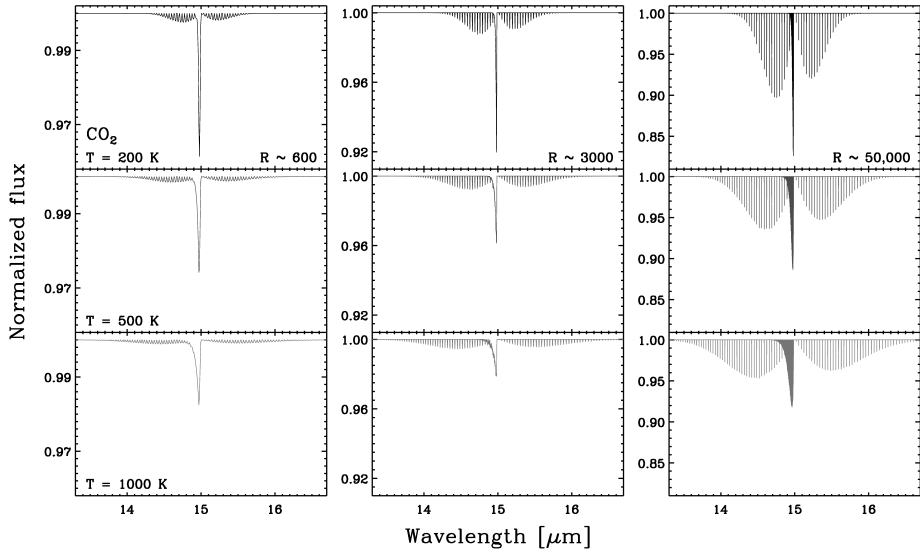


Figure 11 The synthetic spectrum of CO<sub>2</sub> at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

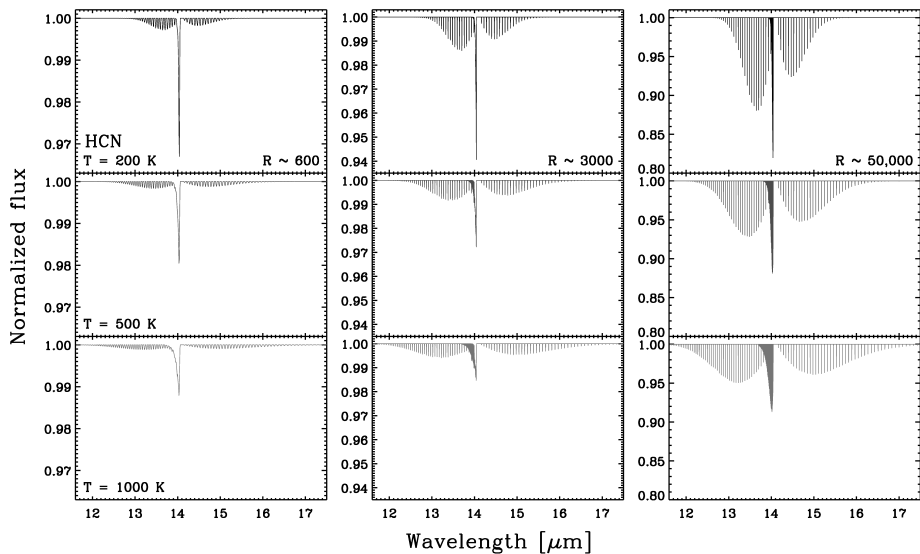


Figure 12 The synthetic spectrum of HCN at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

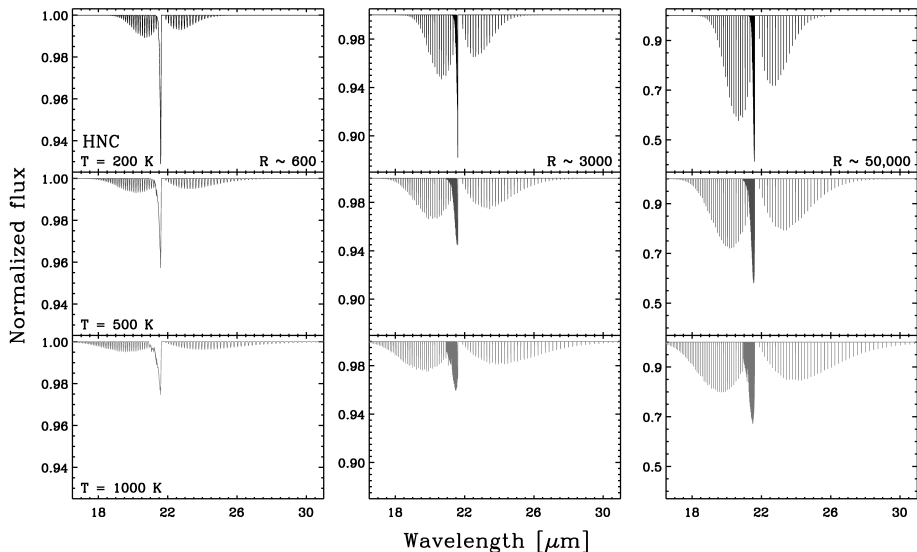


Figure 13 The synthetic spectrum of HNC at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

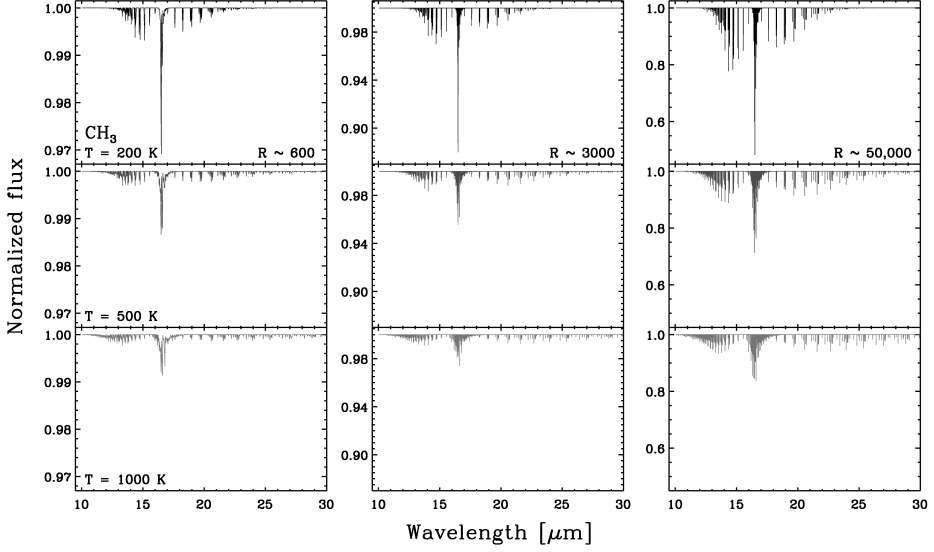


Figure 14 The synthetic spectrum of  $\text{CH}_3$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

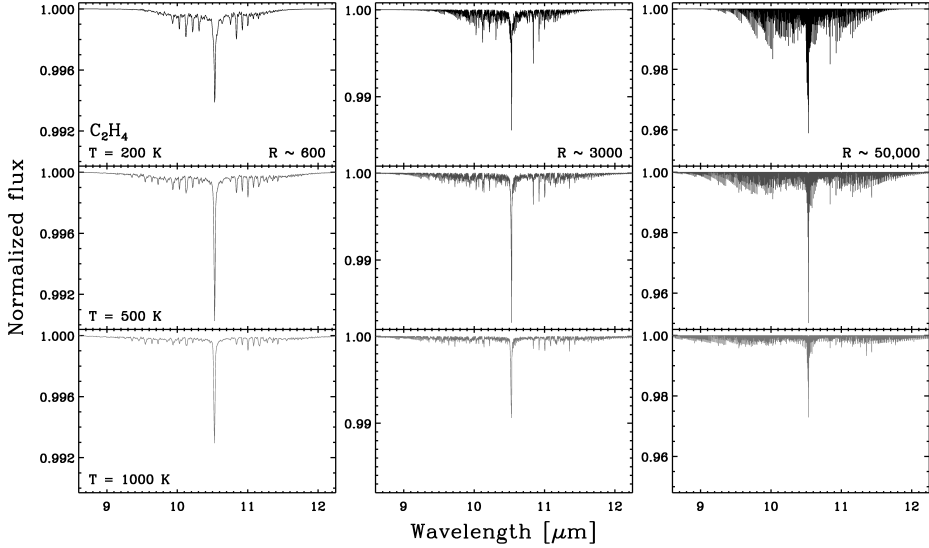


Figure 15 The synthetic spectrum of  $\text{C}_2\text{H}_4$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

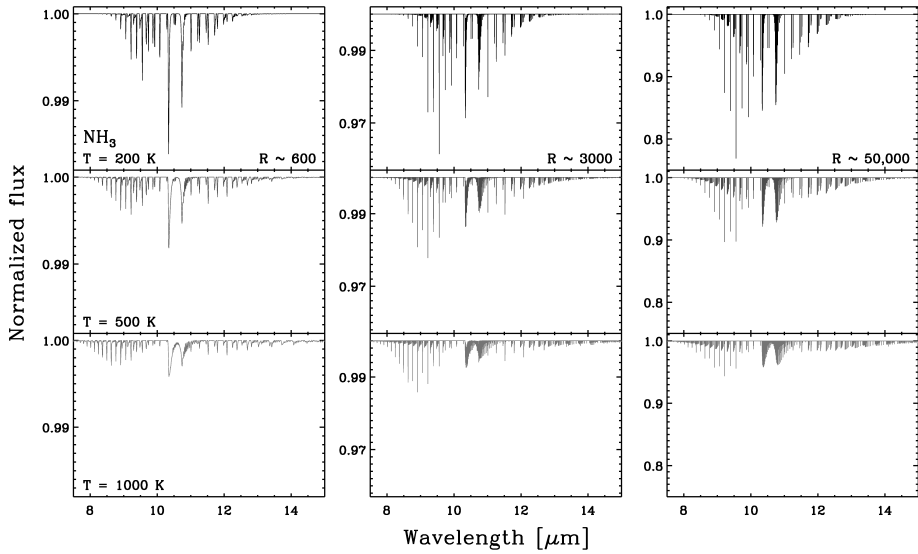


Figure 16 The synthetic spectrum of  $\text{NH}_3$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

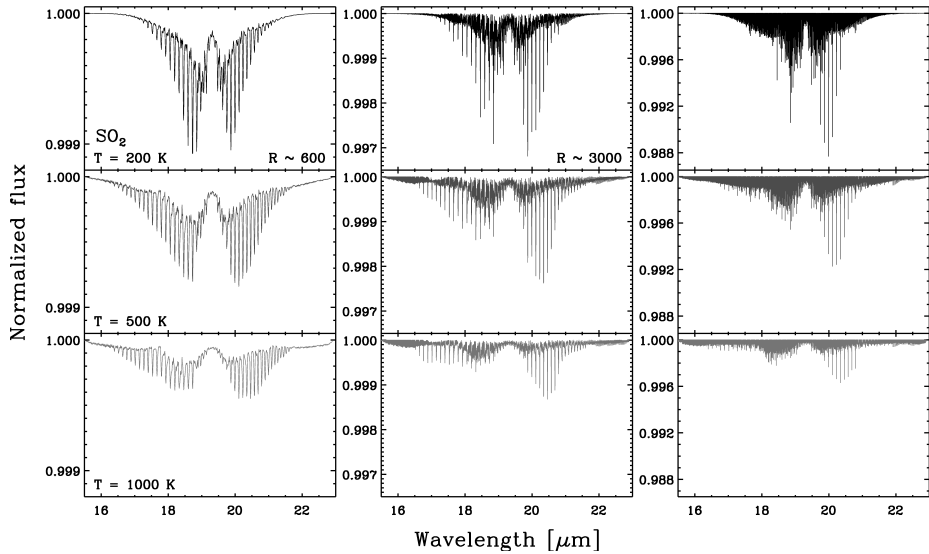


Figure 17 The synthetic spectrum of  $\text{SO}_2$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).



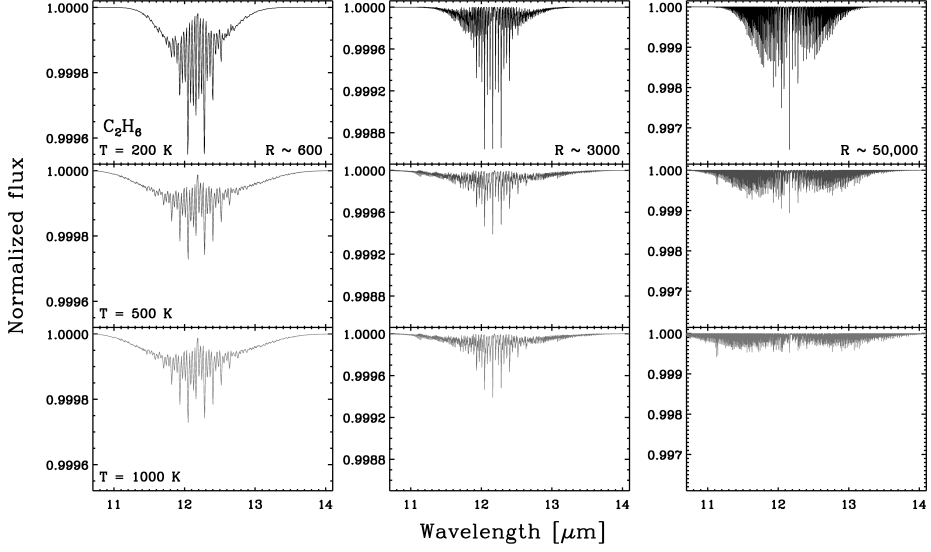


Figure 18 The synthetic spectrum of  $\text{C}_2\text{H}_6$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

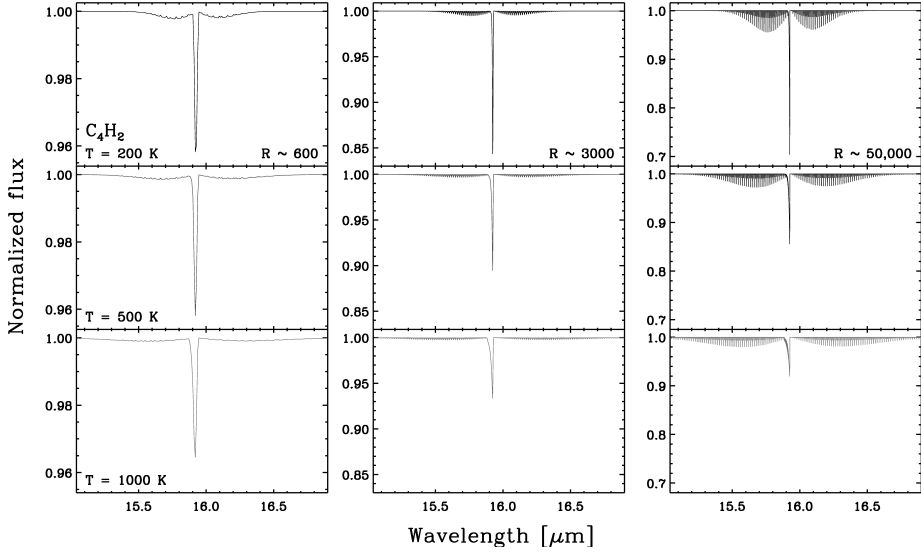


Figure 19 The synthetic spectrum of  $\text{C}_4\text{H}_2$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

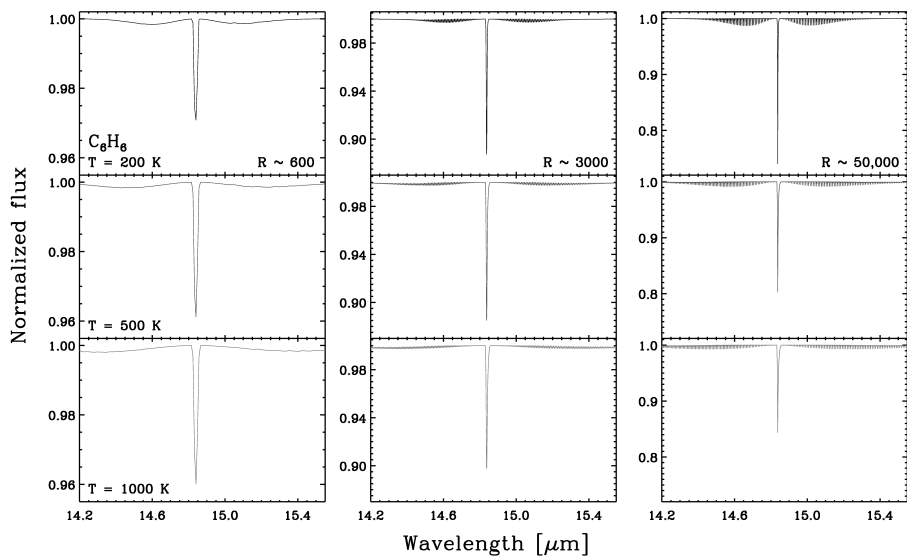


Figure 20 The synthetic spectrum of  $C_6H_6$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

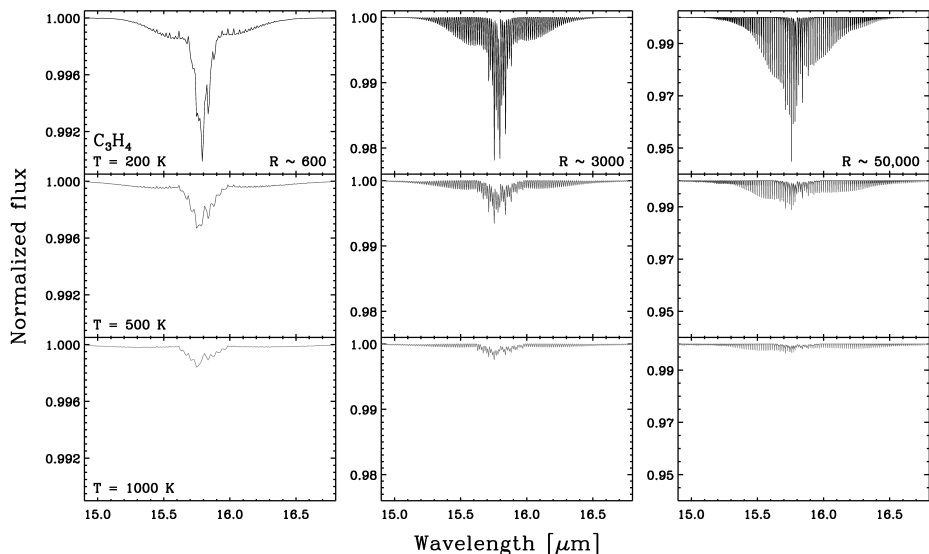


Figure 21 The synthetic spectrum of  $C_3H_4$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

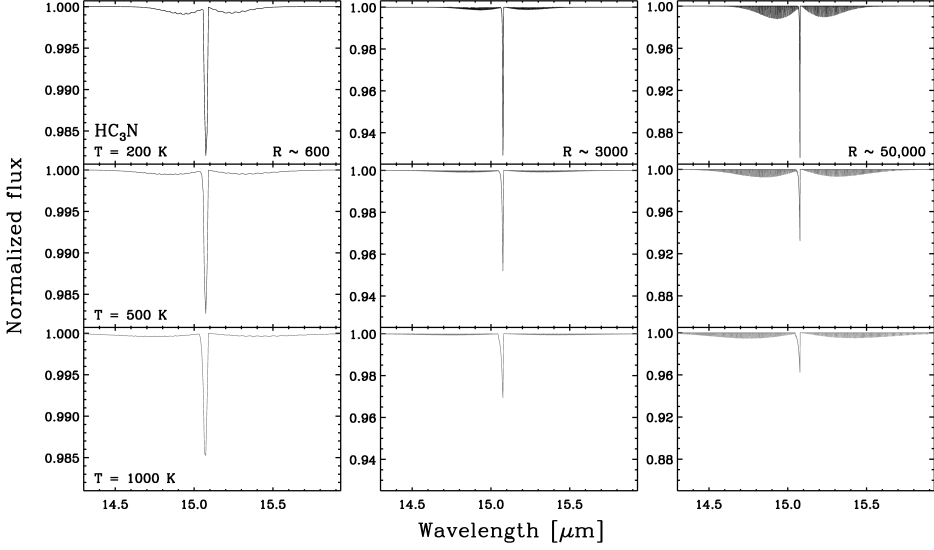


Figure 22 The synthetic spectrum of  $\text{HC}_3\text{N}$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).

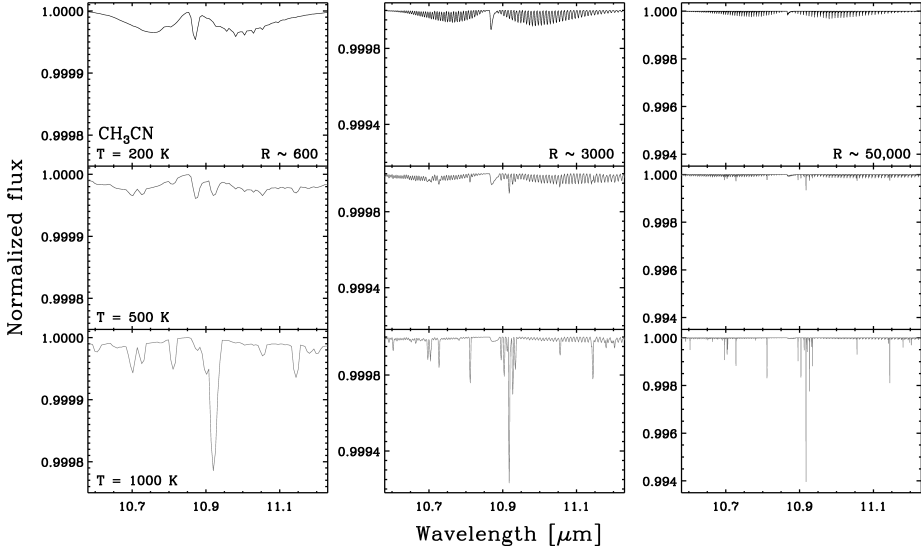


Figure 23 The synthetic spectrum of  $\text{CH}_3\text{CN}$  at a column density of  $1.0 \cdot 10^{16} \text{ cm}^{-2}$ , excitation temperatures of 200 (top), 500 (middle) and 1000 K (bottom), and spectral resolving powers of 600 (left), 3000 (middle) and 50,000 (right).



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