

記錄 編號	6425
狀態	NC094FJU00198005
助教 查核	
索書 號	
學校 名稱	輔仁大學
系所 名稱	物理學系
舊系 所名 稱	
學號	491326198
研究 生 (中)	賴慧芳
研究 生 (英)	Lai Hui Fang
論文 名稱 (中)	以 B-spline 為基底的複數座標旋轉方法來研究鈹原子的光游離
論文 名稱 (英)	B-spline-based Complex-Rotation Method for the Photoionization of Be
其他 題名	
指導 教授 (中)	方德貴
指導 教授 (英)	
校內 全文 開放 日期	

校外全文開放日期	
全文不開放理由	
電子全文送交國圖.	
國圖全文開放日期.	
檔案說明	
電子全文	
學位類別	碩士
畢業學年度	94
出版年	
語文別	中文
關鍵字(中)	光游離 諧振態 Fano q 參數
關鍵字(英)	photoionization resonance Fano q parameter
摘要(中)	我們用以 B-spline 為基底的複數座標旋轉方法來計算鉍原子在 Be+2s 與 Be+3s 臨界值之間的基態光游離截面。我們所得到的諧振態參數，如諧振態的能量、寬度和 Fano q 參數是直接計算出來的。我們的結果與其他理論值有很好的的一致性。
摘要	We have used a B-spline-based complex-rotation method to calculate the ground-

(英)	state photoionization cross sections of Be between the Be+2s and Be+3s thresholds. The resonance parameters, such as resonance energies and widths, and the Fano q parameters, are calculated directly. Our results agree well with other theoretical data.
論文 目次	第一章 緒論 1.1 介紹..... 1 1.2 B-spline ..... 2 1.3 Fano q parameter ..... 4 第二章 理論 ..... 5 第三章 計算結果與討論 3.1 Be 原子模型、基態能量 ..... 9 3.2 最佳 $\beta$ 值的選擇..... 11 3.3 Be 原子 single-channel 諧振態 ..... 14 3.4 Be 原子 multi-channel 諧振態 ..... 19 第四章 結論 ..... 24 參考文獻 ..... 25 附錄 ..... 27
參考 文獻	[1] T. N. Rescigno, "Atomic photoionization by the complex-basis-function expansion method: Application to ground-state and metastable Mg," Phys. Rev. A 31, 607 (1985). [2] H. S. Fung, H. H. Wu, T. S. Yih, T. K. Fang, and T. N. Chang, "Photoabsorption of Mg above the 3p threshold," Phys. Rev. A 64, 052716 (2001). [3] T. N. Chang, "Photoionization Dominated by Double-excitation in Two-electron and Divalent Atoms," in Many-body Atomic Physics, Cambridge Univ. Press, pp. 129-154 (1994). [4] C. deBoor, "A Practical Guide to Splines," Springer, New York (1978). [5] W. R. Johnson, S. A. Blundell, and J. Sapirstein, "Finite basis sets for the Dirac equation constructed from B splines," Phys. Rev. A 37, 307 (1988). [6] U. Fano, "Effects of Configuration Interaction on Intensities and Phase Shifts," Phys. Rev. 124, 1866 (1961). [7] T. K. Fang and T. N. Chang, "B-spline-based multichannel K-matrix method for atomic photoionization," Phys. Rev. A 61, 062704 (2000). [8] T. K. Fang, Y. K. Ho, and Y. C. Lin, "Proceedings of International Seminar on Photoionization in Atom," Kyoto University Press, p. 12 (2002). [9] T. N. Chang, in Many-body Theory of Atomic Structure and Photoionization, edited by T. N. Chang (World Scientific, Singapore, 1993), p. 213. [10] T. N. Rescigno, C. W. McCurdy, Jr., and A. E. Orel, "Extensions of the complex-coordinate method to the study of resonances in many-electron systems," Phys. Rev. A 17, 1931 (1978). [11] T. N. Rescigno and C. W. McCurdy, "Locally complex distortions of the energy spectrum in the calculation of scattering amplitudes and photoionization cross sections," Phys. Rev. A 31, 624 (1985). [12] 林彥璋, "以 B-Spline 為主的複數座標旋轉方法來研究二價原子系統與並行計算," 天主教輔仁大學物理研究所碩士論文, 2-4 (2004). [13] Y. K. Ho and T. K. Fang, "Photoionization Profiles of Helium Autoionizing States in External DC Electric Fields," Journal of the Chinese Chemical Society. 48, 539-544 (2001). [14] Bin Zhou and C. D. Lin, "Photoionization of the beryllium atom," Phys. Rev. A 51, 1286-1290 (1995). [15] T. N. Chang and Lizhi Zhu, "Photoionization of the Be isoelectronic sequence from the ground and the 1S bound excited states," Phys. Rev. A 51,

	374-380 (1995).
論文 頁數	42
附註	
全文 點閱 次數	
資料 建置 時間	
轉檔 日期	
全文 檔存 取記 錄	
異動 記錄	M admin Y2008.M7.D3 23:18 61.59.161.35