

## Publications

### Articles:

1. R. Combescot and X. Leyronas  
*Coupling between Planes and Chains in  $YBa_2Cu_3O_7$ : A Possible Solution for the Order Parameter Controversy*, Phys. Rev. Lett. **75** (1995) 3732-3735
2. X. Leyronas and R. Combescot  
*London penetration depth of strongly coupled superconductors: Low-temperature behavior*, Phys. Rev. B **54** (1996) 3482-3488
3. R. Combescot and X. Leyronas  
*Plane-Chain coupling in  $YBa_2Cu_3O_7$ : Impurity effect on the critical temperature*, Phys. Rev. B **54** (1996) 4320-4330
4. X. Leyronas and R. Combescot  
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5. X. Leyronas, J. Tworzydło and C. W. J. Beenakker  
*Non-Cayley tree model for quasiparticle decay in a quantum dot.*, Phys. Rev. Lett. **82**, 4894 (1999)
6. X. Leyronas, P. G. Silvestrov and C. W. J. Beenakker  
*Scaling at the chaos threshold for interacting electrons in a quantum dot.*, Phys. Rev. Lett. **84**, 3414 (2000)
7. R. Combescot and X. Leyronas  
*A simple theory for high  $\Delta/T_c$  ratio in  $d$ -wave superconductors*, Eur. Phys. J. B **23**, 159-163 (2001)
8. X. Leyronas and M. Combescot  
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9. R. Combescot and X. Leyronas  
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10. M. Combescot, X. Leyronas and C. Tanguy  
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11. J. N. Fuchs, X. Leyronas and R. Combescot  
*Hydrodynamic modes of a 1D trapped Bose gas*, Phys. Rev. A **68**, 043610 (2003)
12. X. Leyronas and R. Combescot  
*Instability of a trapped ultracold Fermi gas with attractive interactions: quantum effects*, Eur. Phys. J. D **31**, 493-497 (2004)
13. R. Combescot and X. Leyronas  
*Comment on "Collective excitations of a degenerate gas at the BEC-BCS crossover"*, Phys. Rev. Lett. **93**, 138901 (2004)
14. R. Combescot and X. Leyronas  
*Axial collective excitations of a degenerate Fermi gas in the BEC to unitarity crossover*, Eur. Phys. Lett., **68** 762-768 (2004)
15. G.E. Astrakharchik, R. Combescot, X. Leyronas and S. Stringari  
*Equation of state and collective frequencies of a trapped Fermi gas along the BEC-unitarity crossover*, Phys. Rev. Lett. **95**, 030404 (2005)
16. I.V. Brodsky, A. V. Klaptsov, M. Yu Kagan, R. Combescot and X. Leyronas  
*Bound states of three and four resonantly interacting particles* JETP Letters vol. 82, issue 5 , page 273-278 (2005) [cond-mat/0507240]
17. R. Combescot, X. Leyronas, M.Yu. Kagan  
*Self-consistent theory for molecular instabilities in a normal degenerate Fermi gas in the BEC-BCS crossover* Phys. Rev. A. **73**, 023618 (2006) [cond-mat/0507636]
18. I.V. Brodsky, A. V. Klaptsov, M. Yu Kagan, R. Combescot and X. Leyronas  
*Exact diagrammatic approach for dimer-dimer scattering and bound states of three and four resonantly interacting particles*, Phys. Rev. A **73**, 032724 (2006)
19. X. Leyronas and R. Combescot  
*Superfluid equation of state of dilute composite bosons* Phys. Rev. Lett. **99**, 170402 (2007)
20. C. Mora, X. Leyronas and N. Regnault  
*Current noise through a Kondo quantum dot in a  $SU(N)$  Fermi liquid state*, Phys. Rev. Lett. **100**, 036604 (2008); Erratum : Phys. Rev. Lett. **102**, 139902 (2009)

21. R. Combescot and X. Leyronas  
*Superfluid equation of state of cold fermionic gases in the Bose-Einstein regime* Phys. Rev. A **78**, 053621 (2008)
22. R. Combescot, F. Alzetto and X. Leyronas  
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23. C. Mora, P. Vitushinsky, X. Leyronas, A. A. Clerk, K. Le Hur  
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24. R. Combescot, S. Giraud and X. Leyronas  
*Analytical theory of the dressed bound state in highly polarized Fermi gases*, Europhys. Lett., **88** (2009) 60007
25. F. Alzetto and X. Leyronas  
*Equation of state of a polarized Fermi gas in the Bose-Einstein Condensate limit* Phys. Rev. A. **81**, 043604 (2010).
26. F. Alzetto, R. Combescot and X. Leyronas  
*Atom-dimer scattering length for fermions with different masses : analytical study of limiting cases*, Phys. Rev. A **82**, 062706 (2010)
27. X. Leyronas  
*Virial expansion with Feynman diagrams* Phys. Rev. A **84**, 053633 (2011)
28. F. Chevy, X. Leyronas et L. Sanchez-Palencia  
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29. F. Alzetto, R. Combescot and X. Leyronas  
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30. F. Alzetto, R. Combescot and X. Leyronas  
*Dimer-dimer scattering length for fermions with different masses: analytical study for large mass ratio* Phys. Rev. A **87**, 022704 (2013)
31. N. Navon, S. Nascimbène, X. Leyronas, F. Chevy and C. Salomon  
*Condensation energy of a spin 1/2 strongly interacting Fermi gas* Phys. Rev. A **88**, 063614, (2013)
32. S. Laurent, X. Leyronas and F. Chevy  
*Momentum distribution of a dilute unitary Bose gas with three-body losses* Phys. Rev. Lett. **113**, 220601 (2014)
33. M. Sun and X. Leyronas  
*High temperature expansion of interacting fermions* Phys. Rev. A **92**, 053611 (2015)

## Proceedings:

1. X. Leyronas, R. Combescot  
*Low temperature penetration depth of strongly coupled superconductors*, Proceeding and selected article for the 21<sup>st</sup> International Conference on Low Temperature Physics, Prague 8 – 14 August 1996.
2. R. Combescot and X. Leyronas  
*Impurity effect on  $T_c$  in the coupled plane-chain model of  $YBa_2Cu_3O_7$* , Proceeding and selected article for the 21<sup>st</sup> International Conference on Low Temperature Physics, Prague 8 – 14 August 1996.
3. X. Leyronas and R. Combescot  
*Equation of state from hydrodynamic modes in dense trapped ultracold gases*, Physica B 329-333 (2003) 32-33, Proceeding for the conference "Low Temperature Physics 23" Hiroshima, Japan, August 2002.
4. M. Yu. Kagan, I. V. Brodsky, A. V. Klaptsov, R. Combescot, and X. Leyronas  
*Composite fermions and bosons in ultracold quantum gases*, in Quantum Liquids and Crystals, Low Temperature Solid State Physics, volume 1 of Russian LT-XXXIV, page 209, Sochi, 2006 (in Russian)
5. I. V. Brodsky, M. Yu. Kagan, A. V. Klaptsov, D. V. Efremov, R. Combescot, and X. Leyronas  
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6. M. Yu. Kagan, A. V. Klaptsov, I. V. Brodsky, R. Combescot, and X. Leyronas  
*Bound states of three and four particles in ultracold gasses and high- $T_c$  superconductors*, in 2-nd International Conference on Fundamental Problems of High Temperature Superconductivity, edited by Yu.V. Kopaev, page 15, 2006 (in Russian).
7. I.V. Brodsky, A. V. Klaptsov, M. Yu Kagan, R. Combescot and X. Leyronas  
*Four -particle problem using Feynman diagrams*, Laser Physics 2007, Vol. 17, No. 3, pp. 1-4. Proceedings for the Conference "15th International Laser Physics workshop (LPHYS'06)", 24-28 July 2006 Lausanne, Switzerland.
8. X. Leyronas and R. Combescot  
*Superfluid equation of state of dilute composite bosons or how to include 3 and 4-body problem in the manybody problem*, Laser Physics 2009, Vol. 19,

No. 4, pp. 599-601. Proceedings for the Conference "17th International Laser Physics workshop (LPHYS'08)", 30 June-4 July 2008 Trondheim, Norway.

9. R. Combescot, S. Giraud and X. Leyronas  
*Normal State of Highly Polarized Fermi Gases : The Bound State*, Laser Physics 2010, Vol. 20, No. 3, pp. 678-682. Proceedings for the Conference "18th International Laser Physics workshop (LPHYS'09)", 13 July-17 July 2009 Barcelona, Spain.