Processes suppressing the charmed resonances

- *Variation of the gluon density inside nuclei (EMC effect)*
  (negligible in the xF domain of the NA50 experiment)

- *Nuclear absorption of the $c\bar{c}g$ state :*

$$S = e^{-\rho \sigma L} \qquad \sigma = \sigma_{c\bar{c}g} \sim 6\text{-}7\ mb$$

(same for J/Ψ, Ψ' and χ resonances)

- *Nuclear absorption of charmed resonances :*
  (depends on the binding energy of the resonance : negligible for the J/Ψ , it can affect the Ψ' and the χ)

- *Absorption by a hadron gas ("comovers")*
  (large theoretical uncertainties)

- *Debye colour screening effect on the $c\bar{c}$ pair potential :*
  (no bound state left when temperature $T \gtrsim T_c$: Matsui and Satz)

$$T_c(\chi) < T_c(\Psi') < T_c(J/\Psi)$$

- *Dissociation of bound states with hard (deconfined) gluons :*
  (if $k_g > E_{liaison}$ with $\langle k_g \rangle \sim \frac{3}{5} T$ if confinement
  $\langle k_g \rangle \sim 3\,T$ if deconfinement)

$E_{binding}(J/\Psi) \sim 0.65\ GeV$ → *dissociated if deconfined medium*

$E_{binding}(\Psi') \sim 0.05\ GeV$ → *dissociated in confined medium*