Table 1 Collisional moments according to the IRMM, Eqs. (17 and 18).

From: Granular Gas of Inelastic and Rough Maxwell Particles

$\Psi_{k_1k_2}(\boldsymbol{\xi})$	$-\nu_{\mathrm{M}}^{-1}\mathcal{J}_{\mathrm{M}}[\Psi_{k_1k_2}]$
$\boldsymbol{\omega}$	$\varphi_{01\|01}\langle\boldsymbol{\omega}\rangle$
V^2	$\chi_{20\|20}\langle V^2\rangle+\chi_{20\|02}\sigma^2\left(\langle\omega^2\rangle+\langle\boldsymbol{\omega}\rangle^2\right)$
$V_iV_j-\frac{V^2}{3}\delta_{ij}$	$\psi_{20\|20}\left(\langle V_iV_j\rangle-\frac{\langle V^2\rangle}{3}\delta_{ij}\right)+\psi_{20\|02}\sigma^2\left(\langle\omega_i\omega_j\rangle+\langle\omega_i\rangle\langle\omega_j\rangle-\frac{\langle\omega^2\rangle+\langle\boldsymbol{\omega}\rangle^2}{3}\delta_{ij}\right)$
ω^2	$\chi_{02\|02}\left(\langle\omega^2\rangle+\langle\boldsymbol{\omega}\rangle^2\right)+\frac{\chi_{02\|20}}{\sigma^2}\langle V^2\rangle$
$\omega_i\omega_j-\frac{\omega^2}{3}\delta_{ij}$	$\psi_{02\|02}\left(\langle\omega_i\omega_j\rangle+\langle\omega_i\rangle\langle\omega_j\rangle-\frac{\langle\omega^2\rangle+\langle\boldsymbol{\omega}\rangle^2}{3}\delta_{ij}\right)+\frac{\psi_{02\|20}}{\sigma^2}\left(\langle V_iV_j\rangle-\frac{\langle V^2\rangle}{3}\delta_{ij}\right)$
$V_i\omega_j$	$\psi_{11\|11}\langle V_i\omega_j\rangle$
V^2V_i	$\varphi_{30\|30}\langle V^2V_i\rangle+\varphi_{30\|12}\sigma^2\left[2\langle\omega^2V_i\rangle-\langle(\mathbf{V}\cdot\boldsymbol{\omega})\omega_i\rangle+4\langle\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}V_i\rangle\right.$
	$\left.-\langle\boldsymbol{\omega}\rangle\cdot\langle\mathbf{V}\omega_i\rangle-\langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle\langle\omega_i\rangle\right]$
ω^2V_i	$\frac{\varphi_{12\|30}}{\sigma^2}\langle V^2V_i\rangle+\varphi_{12\|12}^{(1)}\langle\omega^2V_i\rangle+\varphi_{12\|12}^{(2)}\langle(\mathbf{V}\cdot\boldsymbol{\omega})\omega_i\rangle$
	$+\varphi_{12\|12}^{(3)}\langle\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}V_i\rangle+\varphi_{12\|12}^{(4)}\left(\langle\boldsymbol{\omega}\rangle\cdot\langle\mathbf{V}\omega_i\rangle-\langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle\langle\omega_i\rangle\right)$
$(\mathbf{V}\cdot\boldsymbol{\omega})\,\omega_i$	$\overline{\varphi}_{12\|12}^{(1)}\langle(\mathbf{V}\cdot\boldsymbol{\omega})\,\omega_i\rangle+\overline{\varphi}_{12\|12}^{(2)}\langle\omega^2V_i\rangle+\overline{\varphi}_{12\|12}^{(3)}\langle\boldsymbol{\omega}\rangle\cdot\langle\mathbf{V}\omega_i\rangle+\overline{\varphi}_{12\|12}^{(4)}\langle\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}V_i\rangle$
	$+\overline{\varphi}_{12\|12}^{(5)}\langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle\langle\omega_i\rangle$

$\Psi_{k_1k_2}(\boldsymbol{\xi})$	$-\nu_{\mathrm{M}}^{-1}\mathcal{J}_{\mathrm{M}}[\Psi_{k_1k_2}]$
V^4	$\chi^{(1)}_{40\|40}\langle V^4\rangle + \chi^{(2)}_{40\|40}\langle V^2\rangle^2 + \chi^{(3)}_{40\|40}\langle \mathbf{VV}\rangle : \langle \mathbf{VV}\rangle$ $+ \chi_{40\|04}\sigma^4\left(\langle\omega^4\rangle + \langle\omega^2\rangle^2\right.$
	$\left. +2\langle \boldsymbol{\omega\omega}\rangle : \langle \boldsymbol{\omega\omega}\rangle + 4\langle\omega^2\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}\rangle\right)$ $+ \chi^{(1)}_{40\|22}\sigma^2\left[2\langle V^2\omega^2\rangle + 2\langle V^2\rangle\langle\omega^2\rangle\right.$
	$\left. -\langle(\mathbf{V}\cdot\boldsymbol{\omega})^2\rangle - \langle\mathbf{VV}\rangle : \langle\boldsymbol{\omega\omega}\rangle - 2\langle(\mathbf{V}\cdot\boldsymbol{\omega})\,\mathbf{V}\rangle\cdot\langle\boldsymbol{\omega}\rangle + 4\langle V^2\boldsymbol{\omega}\rangle \cdot\langle\boldsymbol{\omega}\rangle\right]$
	$+\chi^{(2)}_{40\|22}\sigma^2\left(\langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle^2 + \langle\mathbf{V}\boldsymbol{\omega}\rangle : \langle\mathbf{V}\boldsymbol{\omega}\rangle - 4\langle\mathbf{V}\boldsymbol{\omega}\rangle : \langle\boldsymbol{\omega}\mathbf{V}\rangle\right)$
ω^4	$\frac{\chi_{04\|40}}{\sigma^4}\left(\langle V^4\rangle + \langle V^2\rangle^2 + 2\langle\mathbf{VV}\rangle : \langle\mathbf{VV}\rangle\right)$ $+ \frac{\chi^{(1)}_{04\|22}}{\sigma^2}\left[2\langle V^2\omega^2\rangle + 2\langle V^2\rangle\langle\omega^2\rangle\right.$
	$\left. -\langle(\mathbf{V}\cdot\boldsymbol{\omega})^2\rangle - \langle\mathbf{VV}\rangle : \langle\boldsymbol{\omega\omega}\rangle\right] + \frac{\chi^{(2)}_{04\|22}}{\sigma^2}\left[2\langle(\mathbf{V}\cdot\boldsymbol{\omega})\,\mathbf{V}\rangle\cdot\langle\boldsymbol{\omega}\rangle\right.$
	$\left. -4\langle V^2\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}\rangle - \langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle^2 - \langle\mathbf{V}\boldsymbol{\omega}\rangle : \langle\mathbf{V}\boldsymbol{\omega}\rangle + 4\langle\mathbf{V}\boldsymbol{\omega}\rangle : \langle\boldsymbol{\omega}\mathbf{V}\rangle\right]$
	$+\chi^{(1)}_{04\|04}\langle\omega^4\rangle + \chi^{(2)}_{04\|04}\langle\omega^2\rangle^2 + \chi^{(3)}_{04\|04}\langle\boldsymbol{\omega\omega}\rangle : \langle\boldsymbol{\omega\omega}\rangle + \chi^{(4)}_{04\|04}\langle\omega^2\boldsymbol{\omega}\rangle \cdot\langle\boldsymbol{\omega}\rangle$
$V^2\omega^2$	$\frac{\chi^{(1)}_{22\|40}}{\sigma^2}\left(\langle V^4\rangle + \langle V^2\rangle^2\right) + \frac{\chi^{(2)}_{22\|40}}{\sigma^2}\langle\mathbf{VV}\rangle : \langle\mathbf{VV}\rangle + \chi^{(1)}_{22\|22}\langle V^2\omega^2\rangle$
	$+\chi^{(2)}_{22\|22}\langle V^2\rangle\langle\omega^2\rangle + \chi^{(3)}_{22\|22}\langle(\mathbf{V}\cdot\boldsymbol{\omega})^2\rangle + \chi^{(4)}_{22\|22}\langle\mathbf{VV}\rangle : \langle\boldsymbol{\omega\omega}\rangle$
	$+\chi^{(5)}_{22\|22}\langle(\mathbf{V}\cdot\boldsymbol{\omega})\,\mathbf{V}\rangle\cdot\langle\boldsymbol{\omega}\rangle + \chi^{(6)}_{22\|22}\langle V^2\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}\rangle + \chi^{(7)}_{22\|22}\langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle^2$
	$+\chi^{(8)}_{22\|22}\langle\mathbf{V}\boldsymbol{\omega}\rangle : \langle\mathbf{V}\boldsymbol{\omega}\rangle + \chi^{(9)}_{22\|22}\langle\mathbf{V}\boldsymbol{\omega}\rangle : \langle\boldsymbol{\omega}\mathbf{V}\rangle$ $+ \chi^{(1)}_{22\|04}\sigma^2\left(\langle\omega^4\rangle + \langle\omega^2\rangle^2\right)$
	$\chi^{(2)}_{22\|04}\sigma^2\langle\boldsymbol{\omega\omega}\rangle : \langle\boldsymbol{\omega\omega}\rangle + \chi^{(3)}_{22\|04}\sigma^2\langle\omega^2\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}\rangle$
$(\mathbf{V}\cdot\boldsymbol{\omega})^2$	$\frac{\overline{\chi}_{22\|40}}{\sigma^2}\left(\langle V^2\rangle^2 - \langle\mathbf{VV}\rangle : \langle\mathbf{VV}\rangle\right) + \overline{\chi}^{(1)}_{22\|22}\langle(\mathbf{V}\cdot\boldsymbol{\omega})^2\rangle$ $+ \overline{\chi}^{(2)}_{22\|22}\langle V^2\omega^2\rangle$
	$+\overline{\chi}^{(3)}_{22\|22}\langle V^2\rangle\langle\omega^2\rangle + \overline{\chi}^{(4)}_{22\|22}\langle\mathbf{VV}\rangle : \langle\boldsymbol{\omega\omega}\rangle + \overline{\chi}^{(5)}_{22\|22}\langle(\mathbf{V}\cdot\boldsymbol{\omega})\,\mathbf{V}\rangle$ $\cdot\langle\boldsymbol{\omega}\rangle$

$\Psi_{k_1k_2}(\boldsymbol{\xi})$	$-\nu_{\mathrm{M}}^{-1}\mathcal{J}_{\mathrm{M}}[\Psi_{k_1k_2}]$
	$+\overline{\chi}_{22\|22}^{(6)}\langle V^2\boldsymbol{\omega}\rangle\cdot\langle\boldsymbol{\omega}\rangle+\overline{\chi}_{22\|22}^{(7)}\langle\mathbf{V}\cdot\boldsymbol{\omega}\rangle^2+\overline{\chi}_{22\|22}^{(8)}\langle\mathbf{V}\boldsymbol{\omega}\rangle:\langle\mathbf{V}\boldsymbol{\omega}\rangle$
	$+\overline{\chi}_{22\|22}^{(9)}\langle\mathbf{V}\boldsymbol{\omega}\rangle:\langle\boldsymbol{\omega}\mathbf{V}\rangle+\overline{\chi}_{22\|04}\sigma^2\left(\langle\omega^2\rangle^2-\langle\boldsymbol{\omega}\boldsymbol{\omega}\rangle:\langle\boldsymbol{\omega}\boldsymbol{\omega}\rangle\right)$

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