

Table 9.1 – continued from previous page

| | | | | | | |
|-------------------|---|---------------------|----|---|---|-----------------------------------------------------------------------------------------------------------|
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| DBOC_Energy | N | DBOC_Energy | D | N | N | |
| DFT_Energy | N | nAlphaEl | I | N | N | |
| | | nBetaEl | I | N | N | |
| | | nTotalEl | I | N | N | |
| | | finalEn | D | N | N | No Van der Waals correction |
| | | eExchange | D | N | N | |
| | | eCorr | D | N | N | |
| | | eXC | D | N | N | |
| | | eCNL | D | N | N | |
| | | eEmbed | D | Y | N | |
| BROKEN_SYMMETRY | N | enHighSpin | D | N | N | The High Spin Energy |
| | | enBrokenSym | D | N | N | The Broken Symmetry Energy |
| | | SHighSpin | D | N | N | The High Spin Spin |
| | | S2HighSpin | D | N | N | The Expectation value of S**2 for the High Spin case |
| | | S2BrokenSym | D | N | N | The Expectation value of S**2 for the Broken symmetry case |
| Dipole_Moment | Y | dipoleMagnitude | D | N | N | a.u. |
| | | dipoleElecContrib | AD | N | N | Electronic contribution |
| | | dipoleNucContrib | AD | N | N | Nuclear contribution |
| | | dipoleTotal | AD | N | N | Total |
| | | doAtomicDipole | B | N | N | |
| | | atomicDipole | AD | Y | N | Atomic dipoles (NAtoms * X,Y,Z) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| EFG_Tensor | Y | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | QFAC | D | N | Y | Prefactor |
| | | V | AD | N | Y | Raw tensor |
| | | VEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | Viso | D | N | Y | |
| Quadrupole_Moment | Y | isotropicQuadMoment | D | N | N | a.u. |
| | | quadElecContrib | AD | N | N | Electronic contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadNucContrib | AD | N | N | Nuclear contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadTotal | AD | N | N | Total. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadDiagonalized | AD | N | N | The diagonalized tensor a.u. |
| | | doAtomicQuad | B | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|-----------------------------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------|
| | | atomicQuad | AD | Y | N | Atomic quadrupoles (NAtoms * XX, YY, ZZ, XY, XZ, YZ) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| Polarizability | Y | isotropicPolar | D | N | N | |
| | | rawCartesian | AD | N | N | a.u |
| | | diagonalizedTensor | AD | N | N | |
| | | orientation | AD | N | N | |
| | | doAtomicPolar | B | N | N | |
| | | atomicPolarIso | AD | Y | N | Atomic isotropic polar- izabilities |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| Hyperpolarizability | Y | rawCartesian | AD | N | N | a.u |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| Excited_States_Dynamics | N | fluorRateConstant | D | N | N | |
| Energy_Extrapolation | N | doEp1 | B | N | N | Extrapolation using only one method |
| | | doEp2 | B | N | N | Extrapolation using two different methods (same small basis Set) |
| | | doEp3 | B | N | N | Extrapolation using two different methods (use three basis Sets for the cheap method) |
| | | doGradients | B | N | N | Extrapolate energy gra- dients |
| | | scfEnergies | AD | N | N | |
| | | scfCBS | D | N | N | |
| | | scfGradients | AD | Y | N | The SCF Gradients |
| | | corrEnergies | AD | N | N | |
| | | corrCBS | D | N | N | |
| | | ccsdtEnergyX | D | Y | N | |
| | | totalCBS | D | N | N | |
| | | cardinalNumbers | AI | N | N | |
| | | alphas | AD | N | N | |
| | | betas | AD | N | N | |
| | | numOfEnergies | I | N | N | How many energies we are going to use (e.g. two-point scheme). |
| | | basisName | S | N | Y | |
| gCP_Energy | N | gCP_Energy | D | N | N | |
| Hessian | N | HESSIAN | AD | N | N | The Hessian |
| | | MODES | AD | N | N | The modes of vibrations |
| ICE_Dipole_Moment [Dipole_Moment] | Y | dipoleMagnitude | D | N | N | a.u. |
| | | dipoleElecContrib | AD | N | N | Electronic contribution |
| | | dipoleNucContrib | AD | N | N | Nuclear contribution |
| | | dipoleTotal | AD | N | N | Total |
| | | doAtomicDipole | B | N | N | |
| | | atomicDipole | AD | Y | N | Atomic dipoles (NAtoms * X,Y,Z) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| ICE_EFG_Tensor [EFG_Tensor] | Y | numOfNuCs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|----------------------------------------------|---|---------------------|----|---|---|--------------------------------------------------------------|
| ICE_Polarizability [Polarizability] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | QFAC | D | N | Y | Prefactor |
| | | V | AD | N | Y | Raw tensor |
| | | VEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | VIso | D | N | Y | |
| | | isotropicPolar | D | N | N | |
| | | rawCartesian | AD | N | N | a.u. |
| | | diagonalizedTensor | AD | N | N | |
| | | orientation | AD | N | N | |
| | | doAtomicPolar | B | N | N | |
| | | atomicPolarIso | AD | Y | N | Atomic isotropic polarizabilities |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| ICE_Quadrupole_Moment [Quadrupole_Moment] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | isotropicQuadMoment | D | N | N | a.u. |
| | | quadElecContrib | AD | N | N | Electronic contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadNucContrib | AD | N | N | Nuclear contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadTotal | AD | N | N | Total. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadDiagonalized | AD | N | N | The diagonalized tensor |
| | | doAtomicQuad | B | N | N | |
| | | atomicQuad | AD | Y | N | Atomic quadrupoles (NAtoms * XX, YY, ZZ, XY, XZ, YZ) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| ICE_A_Tensor [A_Tensor] | Y | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elem | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | PFAC | D | N | Y | Prefactor PFAC=geg/Nbe*bN (in MHz) |
| | | ARaw | AD | N | Y | Raw tensor |
| | | AEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| ICE_Chemical_Shift [Chemical_Shift] | Y | AIso | D | N | Y | |
| | | numOfNucs | I | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | | | | | |

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Table 9.1 – continued from previous page

| | | | | | | |
|-----------------------------------------------|---|--------------------|----|---|---|-----------------------------------------------------------------------------------------------|
| ICE_D_Tensor [D_Tensor] | Y | SDSO | AD | N | Y | Diamagnetic contribu- |
| | | SPSO | AD | N | Y | tion |
| | | STot | AD | N | Y | Paramagnetic contribu- |
| | | orientation | AD | N | Y | tion |
| | | sTotEigen | AD | N | Y | Total tensor |
| | | siso | D | N | Y | Eigenvectors |
| | | saniso | D | N | Y | Eigenvalues |
| | | d_raw | AD | N | N | |
| | | d_eigenvalues | AD | N | N | |
| | | d_eigenvectors | AD | N | N | |
| | | D | D | N | N | |
| | | E | D | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| ICE_G_Tensor [G_Tensor] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | g_matrix | AD | N | N | |
| | | g_elec | D | N | N | The free electron g-value contribution |
| | | g_RMC | D | N | N | The reduced mass correction |
| | | g_DSO | AD | N | N | |
| | | g_PSO | AD | N | N | |
| | | g_Tot | AD | N | N | |
| | | g_iso | D | N | N | |
| | | Delta_g | AD | N | N | |
| | | Delta_g_iso | D | N | N | |
| | | orientation | AD | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| ICE_Spin_Spin_Coupling [Spin_Spin_Coupling] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucPairs | I | N | N | Number of nuclei pairs to calculate |
| | | numOfNucPairsDSO | I | N | N | number of nuclear pairs to calculate DSO |
| | | numOfNucPairsPSO | I | N | N | number of nuclear pairs to calculate PSO |
| | | numOfNucPairsFC | I | N | N | number of nuclear pairs to calculate FC |
| | | numOfNucPairsSD | I | N | N | number of nuclear pairs to calculate SD |
| | | numOfNucPairsSD_FC | I | N | N | number of nuclear pairs to calculate SD/FC |
| | | pairsInfo | AI | N | N | Pairs Info: Col1->Index of A. Col2->Atom. Num. of A. Col3->Index of B. Col4->Atom. Num. of B. |
| | | pairsDistances | AD | N | N | The distances of each pair |
| | | pairsTotalSSCIso | AD | N | N | The Spin-Spin coupling constant for each pair |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| ICE_Absorption_Spectrum [Absorption_Spectrum] | Y | Irrep | I | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |

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Table 9.1 – continued from previous page

| | | | | | | |
|---------------------------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ICE_ECD_Spectrum [ECD_Spectrum] | Y | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|--------------------------------------------------|---|-----------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Calculation_Info | N | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | Mult | I | N | N | |
| | | Charge | I | N | N | |
| | | NumOfAtoms | I | N | N | |
| | | NumOfElectrons | I | N | N | |
| | | NumOfBasisFuncts | I | N | N | |
| | | NumOfAuxCBasisFuncts | I | N | N | |
| | | NumOfAuxJBasisFuncts | I | N | N | |
| Single_Point_Data | N | NumOfAuxJKBasisFuncts | I | N | N | |
| | | NumOfCABSbasisFuncts | I | N | N | |
| LFT_Absorption_Spectrum [Absorption_Spectrum] | Y | FinalEnergy | D | N | N | Final single point energy |
| | | Converged | B | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| LFT_ECD_Spectrum [ECD_Spectrum] | Y | Temperature | D | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |

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Table 9.1 – continued from previous page

| | | | | | | |
|----------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A_Tensor | Y | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elem | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | PFAC | D | N | Y | Prefactor PFAC=gegNbe*bN (in MHz) |
| | | ARaw | AD | N | Y | Raw tensor |
| Chemical_Shift | Y | AEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | AIso | D | N | Y | |
| | | numOfNucs | I | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | SDSO | AD | N | Y | Diamagnetic contribution |
| | | SPSO | AD | N | Y | Paramagnetic contribution |
| | | STot | AD | N | Y | Total tensor |
| | | orientation | AD | N | Y | Eigenvectors |
| | | sTotEigen | AD | N | Y | Eigenvalues |
| | | siso | D | N | Y | |
| | | saniso | D | N | Y | |

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Table 9.1 – continued from previous page

| | | | | | | |
|----------------------------------------|---|--------------------|----|---|---|-----------------------------------------------------------------------------------------------|
| D_Tensor | Y | d_raw | AD | N | N | |
| | | d_eigenvalues | AD | N | N | |
| | | d_eigenvectors | AD | N | N | |
| | | D | D | N | N | |
| | | E | D | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| G_Tensor | Y | g_matrix | AD | N | N | |
| | | g_elec | D | N | N | The free electron g-value contribution |
| | | g_RMC | D | N | N | The reduced mass correction |
| | | g_DSO | AD | N | N | |
| | | g_PSO | AD | N | N | |
| | | g_Tot | AD | N | N | |
| | | g_iso | D | N | N | |
| | | Delta_g | AD | N | N | |
| | | Delta_g_iso | D | N | N | |
| | | orientation | AD | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| Spin_Spin_Coupling | Y | numOfNucPairs | I | N | N | Number of nuclei pairs to calculate |
| | | numOfNucPairsDSO | I | N | N | number of nuclear pairs to calculate DSO |
| | | numOfNucPairsPSO | I | N | N | number of nuclear pairs to calculate PSO |
| | | numOfNucPairsFC | I | N | N | number of nuclear pairs to calculate FC |
| | | numOfNucPairsSD | I | N | N | number of nuclear pairs to calculate SD |
| | | numOfNucPairsSD_FC | I | N | N | number of nuclear pairs to calculate SD/FC |
| | | pairsInfo | AI | N | N | Pairs Info: Col1->Index of A. Col2->Atom. Num. of A. Col3->Index of B. Col4->Atom. Num. of B. |
| | | pairsDistances | AD | N | N | The distances of each pair |
| | | pairsTotalSSCIso | AD | N | N | The Spin-Spin coupling constant for each pair |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MCRPA_Dipole_Moment [Dipole_Moment] | Y | dipoleMagnitude | D | N | N | a.u. |
| | | dipoleElecContrib | AD | N | N | Electronic contribution |
| | | dipoleNucContrib | AD | N | N | Nuclear contribution |
| | | dipoleTotal | AD | N | N | Total |
| | | doAtomicDipole | B | N | N | |
| | | atomicDipole | AD | Y | N | Atomic dipoles (NAtoms * X,Y,Z) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| MCRPA_EFG_Tensor [EFG_Tensor] | Y | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|------------------------------------------------|---|---------------------|----|---|---|--------------------------------------------------------------|
| MCRPA_Polarizability [Polarizability] | Y | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | QFAC | D | N | Y | Prefactor |
| | | V | AD | N | Y | Raw tensor |
| | | VEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | VIso | D | N | Y | |
| | | isotropicPolar | D | N | N | |
| | | rawCartesian | AD | N | N | a.u. |
| | | diagonalizedTensor | AD | N | N | |
| | | orientation | AD | N | N | |
| | | doAtomicPolar | B | N | N | |
| | | atomicPolarIso | AD | Y | N | Atomic isotropic polarizabilities |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| MCRPA_Quadrupole_Moment [Quadrupole_Moment] | Y | Irrep | I | N | N | |
| | | isotropicQuadMoment | D | N | N | a.u. |
| | | quadElecContrib | AD | N | N | Electronic contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadNucContrib | AD | N | N | Nuclear contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadTotal | AD | N | N | Total. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadDiagonalized | AD | N | N | The diagonalized tensor |
| | | doAtomicQuad | B | N | N | |
| | | atomicQuad | AD | Y | N | Atomic quadrupoles (NAtoms * XX, YY, ZZ, XY, XZ, YZ) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MCRPA_A_Tensor [A_Tensor] | Y | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elem | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | PFAC | D | N | Y | Prefactor PFAC=geg/Nbe*bN (in MHz) |
| | | ARaw | AD | N | Y | Raw tensor |
| | | AEigenvalues | AD | N | Y | Eigenvalues |
| MCRPA_Chemical_Shift [Chemical_Shift] | Y | orientation | AD | N | Y | Eigenvectors |
| | | AIso | D | N | Y | |
| | | numOfNucs | I | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | SDSO | AD | N | Y | Diamagnetic contribu- tion |

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Table 9.1 – continued from previous page

| | | | | | | |
|-------------------------------------------------|---|--------------------|----|---|---|-----------------------------------------------------------------------------------------------|
| MCRPA_D_Tensor [D_Tensor] | Y | SPSO | AD | N | Y | Paramagnetic contribu- |
| | | | | | | tion |
| | | STot | AD | N | Y | Total tensor |
| | | orientation | AD | N | Y | Eigenvectors |
| | | sTotEigen | AD | N | Y | Eigenvalues |
| | | siso | D | N | Y | |
| | | saniso | D | N | Y | |
| | | d_raw | AD | N | N | |
| | | d_eigenvalues | AD | N | N | |
| | | d_eigenvectors | AD | N | N | |
| | | D | D | N | N | |
| | | E | D | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| MCRPA_G_Tensor [G_Tensor] | Y | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | g_matrix | AD | N | N | |
| | | g_elec | D | N | N | The free electron g-value contribution |
| | | g_RMC | D | N | N | The reduced mass correction |
| | | g_DSO | AD | N | N | |
| | | g_PSO | AD | N | N | |
| | | g_Tot | AD | N | N | |
| | | g_iso | D | N | N | |
| | | Delta_g | AD | N | N | |
| | | Delta_g_iso | D | N | N | |
| | | orientation | AD | N | N | |
| | | Method | S | N | N | |
| MCRPA_Spin_Spin_Coupling [Spin_Spin_Coupling] | Y | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucPairs | I | N | N | Number of nuclei pairs to calculate |
| | | numOfNucPairsDSO | I | N | N | number of nuclear pairs to calculate DSO |
| | | numOfNucPairsPSO | I | N | N | number of nuclear pairs to calculate PSO |
| | | numOfNucPairsFC | I | N | N | number of nuclear pairs to calculate FC |
| | | numOfNucPairsSD | I | N | N | number of nuclear pairs to calculate SD |
| | | numOfNucPairsSD_FC | I | N | N | number of nuclear pairs to calculate SD/FC |
| | | pairsInfo | AI | N | N | Pairs Info: Col1->Index of A. Col2->Atom. Num. of A. Col3->Index of B. Col4->Atom. Num. of B. |
| | | pairsDistances | AD | N | N | The distances of each pair |
| | | pairsTotalSSCIso | AD | N | N | The Spin-Spin coupling constant for each pair |
| | | Method | S | N | N | |
| MCRPA_Absorption_Spectrum [Absorption_Spectrum] | Y | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknown, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |

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Table 9.1 – continued from previous page

| | | | | | | |
|-----------------------------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MCRPA_ECD_Spectrum [ECD_Spectrum] | Y | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|--------------------------------------|---|-------------------|----|---|---|-----------------------------------------------------------------------------------------------------------|
| MDCI_Energies [Energy] | Y | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | numOfEl | I | N | N | |
| | | numOfCorrEl | I | N | N | |
| | | numOfAlphaCorrEl | I | N | N | |
| | | numOfBetaCorrEl | I | N | N | |
| | | refEnergy | AD | N | N | Reference Energy |
| | | corrEnergy | AD | N | N | Total Correlation Energy |
| | | aaCorrEn | AD | N | N | Alpha-Alpha Pairs Correlation Energy (No (T)) |
| | | bbCorrEn | AD | N | N | Beta-Beta Pairs Correlation Energy (No (T)) |
| | | abCorrEn | AD | N | N | Alpha-Beta Pairs Correlation Energy (No (T)) |
| | | CorrDS | AD | Y | N | Singlet pairs energy of double amplitudes (No (T)) |
| | | CorrDT | AD | Y | N | Triplet pairs energy of double amplitudes (No (T)) |
| | | CorrSS | AD | Y | N | Singlet pairs energy of quadratic single amplitudes (No (T)) |
| | | CorrST | AD | Y | N | Triplet pairs energy of quadratic single amplitudes (No (T)) |
| | | triplesEnergy | AD | N | N | Triples Correction Energy |
| | | Method | S | N | N | |
| | | totalEnergy | AD | N | N | Total energy of each state |
| | | Mult | AI | Y | N | Multiplicity of each state |
| | | Irrep | AI | Y | N | Irreducible representation of each state |
| | | RelCorr | S | Y | N | Relativistic correction (SOC and/or SSC) |
| | | NBlocks | I | Y | N | Number of multiplicity blocks |
| | | NRoots | AI | Y | N | Number of roots in each block |
| | | NTotalRoots | I | Y | N | Total number of roots |
| | | Block | AI | Y | N | Block index of each state |
| | | Root | AI | Y | N | Root index within the block |
| | | FollowIRoot | I | Y | N | Index of the followed root |
| | | AvgMult | AD | Y | N | Average multiplicity of each SO-/SS-coupled state |
| MDCI_Nuc_Gradient [Nuclear_Gradient] | Y | NAtoms | I | N | N | |
| | | gradNorm | D | N | N | |
| | | grad | AD | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| MDCI_Dipole_Moment [Dipole_Moment] | Y | Irrep | I | N | N | |
| | | dipoleMagnitude | D | N | N | a.u. |
| | | dipoleElecContrib | AD | N | N | Electronic contribution |
| | | dipoleNucContrib | AD | N | N | Nuclear contribution |
| | | dipoleTotal | AD | N | N | Total |
| | | doAtomicDipole | B | N | N | |
| | | atomicDipole | AD | Y | N | Atomic dipoles (NAtoms * X,Y,Z) |
| | | Method | S | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|--------------------------------------------|---|---------------------|----|---|---|--------------------------------------------------------|
| MDCI_EFG_Tensor [EFG_Tensor] | Y | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | QFAC | D | N | Y | Prefactor |
| | | V | AD | N | Y | Raw tensor |
| | | VEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | VIso | D | N | Y | |
| | | isotropicPolar | D | N | N | |
| MDCI_Polarizability [Polarizability] | Y | rawCartesian | AD | N | N | a.u. |
| | | diagonalizedTensor | AD | N | N | |
| | | orientation | AD | N | N | |
| | | doAtomicPolar | B | N | N | |
| | | atomicPolarIso | AD | Y | N | Atomic isotropic polarizabilities |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MDCI_Quadrupole_Moment [Quadrupole_Moment] | Y | isotropicQuadMoment | D | N | N | a.u. |
| | | quadElecContrib | AD | N | N | Electronic contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadNucContrib | AD | N | N | Nuclear contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadTotal | AD | N | N | Total. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadDiagonalized | AD | N | N | The diagonalized tensor a.u. |
| | | doAtomicQuad | B | N | N | |
| | | atomicQuad | AD | Y | N | Atomic quadrupoles (NAtoms * XX, YY, ZZ, XY, XZ, YZ) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| MDCI_A_Tensor [A_Tensor] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elem | I | N | Y | Atomic number of the nuclei |
| MDCI_Chemical_Shift [Chemical_Shift] | Y | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | PFAC | D | N | Y | Prefactor PFAC=geg/Nbe*bN (in MHz) |
| | | ARaw | AD | N | Y | Raw tensor |
| | | AEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | AIso | D | N | Y | |
| | | numOfNucs | I | N | N | |
| | | Method | S | N | N | |
| | | | | | | |

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Table 9.1 – continued from previous page

| | | | | | | |
|------------------------------------------------|---|--------------------|----|---|---|-----------------------------------------------------------------------------------------------|
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | SDSO | AD | N | Y | Diamagnetic contribution |
| | | SPSO | AD | N | Y | Paramagnetic contribution |
| | | STot | AD | N | Y | Total tensor |
| | | orientation | AD | N | Y | Eigenvectors |
| | | sTotEigen | AD | N | Y | Eigenvalues |
| | | siso | D | N | Y | |
| | | saniso | D | N | Y | |
| MDCI_D_Tensor [D_Tensor] | Y | d_raw | AD | N | N | |
| | | d_eigenvalues | AD | N | N | |
| | | d_eigenvectors | AD | N | N | |
| | | D | D | N | N | |
| | | E | D | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MDCI_G_Tensor [G_Tensor] | Y | g_matrix | AD | N | N | |
| | | g_elec | D | N | N | The free electron g-value contribution |
| | | g_RMC | D | N | N | The reduced mass correction |
| | | g_DSO | AD | N | N | |
| | | g_PSO | AD | N | N | |
| | | g_Tot | AD | N | N | |
| | | g_iso | D | N | N | |
| | | Delta_g | AD | N | N | |
| | | Delta_g_iso | D | N | N | |
| | | orientation | AD | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MDCI_Spin_Spin_Coupling [Spin_Spin_Coupling] | Y | numOfNucPairs | I | N | N | Number of nuclei pairs to calculate |
| | | numOfNucPairsDSO | I | N | N | number of nuclear pairs to calculate DSO |
| | | numOfNucPairsPSO | I | N | N | number of nuclear pairs to calculate PSO |
| | | numOfNucPairsFC | I | N | N | number of nuclear pairs to calculate FC |
| | | numOfNucPairsSD | I | N | N | number of nuclear pairs to calculate SD |
| | | numOfNucPairsSD_FC | I | N | N | number of nuclear pairs to calculate SD/FC |
| | | pairsInfo | AI | N | N | Pairs Info: Col1->Index of A. Col2->Atom. Num. of A. Col3->Index of B. Col4->Atom. Num. of B. |
| | | pairsDistances | AD | N | N | The distances of each pair |
| | | pairsTotalSSCIso | AD | N | N | The Spin-Spin coupling constant for each pair |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MDCI_Absorption_Spectrum [Absorption_Spectrum] | Y | Method | I | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|----------------------------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MDCI_ECD_Spectrum [ECD_Spectrum] | Y | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknown, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2->Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Unknown, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|-------------------------------------|---|--------------------|----|---|---|-----------------------------------------------------------------------------------------------------------|
| MP2_Energies [Energy] | Y | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multiplicity of the final state |
| | | Temperature | D | N | N | |
| | | refEnergy | AD | N | N | Reference energy for each state |
| | | corrEnergy | AD | N | N | MP2 correlation energy for each state |
| | | Method | S | N | N | |
| | | totalEnergy | AD | N | N | Total energy of each state |
| | | Mult | AI | Y | N | Multiplicity of each state |
| | | Irrep | AI | Y | N | Irreducible representation of each state |
| | | RelCorr | S | Y | N | Relativistic correction (SOC and/or SSC) |
| | | NBlocks | I | Y | N | Number of multiplicity blocks |
| | | NRoots | AI | Y | N | Number of roots in each block |
| | | NTotalRoots | I | Y | N | Total number of roots |
| | | Block | AI | Y | N | Block index of each state |
| | | Root | AI | Y | N | Root index within the block |
| | | FollowIRoot | I | Y | N | Index of the followed root |
| | | AvgMult | AD | Y | N | Average multiplicity of each SO-/SS-coupled state |
| MP2_Nuc_Gradient [Nuclear_Gradient] | Y | NAtoms | I | N | N | |
| | | gradNorm | D | N | N | |
| | | grad | AD | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| MP2_Dipole_Moment [Dipole_Moment] | Y | Irrep | I | N | N | |
| | | dipoleMagnitude | D | N | N | a.u. |
| | | dipoleElecContrib | AD | N | N | Electronic contribution |
| | | dipoleNucContrib | AD | N | N | Nuclear contribution |
| | | dipoleTotal | AD | N | N | Total |
| | | doAtomicDipole | B | N | N | |
| | | atomicDipole | AD | Y | N | Atomic dipoles (NAtoms * X,Y,Z) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| MP2_EFG_Tensor [EFG_Tensor] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | QFAC | D | N | Y | Prefactor |
| | | V | AD | N | Y | Raw tensor |
| | | VEigenvalues | AD | N | Y | Eigenvalues |
| MP2_Polarizability [Polarizability] | Y | orientation | AD | N | Y | Eigenvectors |
| | | Viso | D | N | Y | |
| | | isotropicPolar | D | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|----------------------------------------------|---|---------------------|----|---|---|--------------------------------------------------------------|
| MP2_Quadrupole_Moment [Quadrupole_Moment] | Y | rawCartesian | AD | N | N | a.u. |
| | | diagonalizedTensor | AD | N | N | |
| | | orientation | AD | N | N | |
| | | doAtomicPolar | B | N | N | |
| | | atomicPolarIso | AD | Y | N | Atomic isotropic polarizabilities |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | isotropicQuadMoment | D | N | N | a.u. |
| | | quadElecContrib | AD | N | N | Electronic contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadNucContrib | AD | N | N | Nuclear contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadTotal | AD | N | N | Total. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadDiagonalized | AD | N | N | The diagonalized tensor a.u. |
| | | doAtomicQuad | B | N | N | |
| | | atomicQuad | AD | Y | N | Atomic quadrupoles (NAtoms * XX, YY, ZZ, XY, XZ, YZ) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| MP2_A_Tensor [A_Tensor] | Y | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elem | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | PFAC | D | N | Y | Prefactor PFAC=geg/Nbe*bN (in MHz) |
| | | ARaw | AD | N | Y | Raw tensor |
| | | AEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | AIso | D | N | Y | |
| MP2_Chemical_Shift [Chemical_Shift] | Y | numOfNucs | I | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | SDSO | AD | N | Y | Diamagnetic contribu- tion |
| | | SPSO | AD | N | Y | Paramagnetic contribu- tion |
| | | STot | AD | N | Y | Total tensor |
| | | orientation | AD | N | Y | Eigenvectors |
| | | sTotEigen | AD | N | Y | Eigenvalues |
| | | siso | D | N | Y | |
| | | saniso | D | N | Y | |
| | | d_raw | AD | N | N | |
| | | d_eigenvalues | AD | N | N | |
| | | d_eigenvectors | AD | N | N | |
| MP2_D_Tensor [D_Tensor] | Y | D | D | N | N | |
| | | E | D | N | N | |
| | | | | | | |

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| | | | | | | |
|-----------------------------------------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MP2_G_Tensor [G_Tensor] | Y | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | g_matrix | AD | N | N | |
| | | g_elec | D | N | N | The free electron g-value contribution |
| | | g_RMC | D | N | N | The reduced mass correction |
| | | g_DSO | AD | N | N | |
| | | g_PSO | AD | N | N | |
| | | g_Tot | AD | N | N | |
| | | g_iso | D | N | N | |
| | | Delta_g | AD | N | N | |
| | | Delta_g_iso | D | N | N | |
| | | orientation | AD | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| MP2_Spin_Spin_Coupling [Spin_Spin_Coupling] | Y | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucPairs | I | N | N | Number of nuclei pairs to calculate |
| | | numOfNucPairsDSO | I | N | N | number of nuclear pairs to calculate DSO |
| | | numOfNucPairsPSO | I | N | N | number of nuclear pairs to calculate PSO |
| | | numOfNucPairsFC | I | N | N | number of nuclear pairs to calculate FC |
| | | numOfNucPairsSD | I | N | N | number of nuclear pairs to calculate SD |
| | | numOfNucPairsSD_FC | I | N | N | number of nuclear pairs to calculate SD/FC |
| | | pairsInfo | AI | N | N | Pairs Info: Col1->Index of A. Col2->Atom. Num. of A. Col3->Index of B. Col4->Atom. Num. of B. |
| | | pairsDistances | AD | N | N | The distances of each pair |
| | | pairsTotalSSCIso | AD | N | N | The Spin-Spin coupling constant for each pair |
| | | Method | S | N | N | |
| MP2_Absorption_Spectrum [Absorption_Spectrum] | Y | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknow, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknow, 1->Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what perturbation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4->Magnetic/Dipole, 5->Magnetic/Quad |
| | | | | | | |
| | | | | | | |

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| | | | | | | |
|---------------------------------------|---|--------------------|----|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MP2_ECD_Spectrum [ECD_Spectrum] | Y | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2-> Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Un- known, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multi- plicity of the final state |
| | | Temperature | D | N | N | |
| | | Method | I | N | N | |
| | | RelCorrection | I | N | N | Type of relativistic treatment in QDPT. 0->Unknown, 1->None, 2->SOC, 3->SSC, 4->SOC/SSC |
| | | DensType | I | N | N | Type of density (electron/spin ...). 0->Unknown, 1-> Electronic, 2->Spin, 3->Trans/Electronic, 4->Tran/Spin |
| | | DeriType | I | N | N | Type of derivative (w.r.t. to what pertur- bation). 0->Unknown, 1->No Derivative, 2->Electric/Dipole, 3->Electric/Quad, 4-> Magnetic/Dipole, 5->Magnetic/Quad |
| | | DensLevel | I | N | N | // Source of density: relaxed, unrelaxed, ... 0->Unknown, 1->Linearized, 2-> Unrelaxed, 3->Relaxed |
| | | Density_name | S | N | N | |
| | | Representation | S | N | N | Possible values: Un- known, Length, Velocity |
| | | PointGroup | S | N | N | |
| | | DoHigherMoments | B | N | N | |
| | | NTrans | I | N | N | |
| | | ExcitationEnergies | AD | N | N | |
| | | States | AI | N | N | The initial and Final states. Col1: Initial State Col2: Initial Irrep Col3: Final State Col4: Final Irrep |
| | | Multiplicities | AD | N | N | Col1: Multiplicity of the initial state Col2: Multi- plicity of the final state |
| | | Temperature | D | N | N | |
| MRCI_Dipole_Moment [Dipole_Moment] | Y | dipoleMagnitude | D | N | N | a.u. |
| | | dipoleElecContrib | AD | N | N | Electronic contribution |
| | | dipoleNucContrib | AD | N | N | Nuclear contribution |
| | | dipoleTotal | AD | N | N | Total |
| | | doAtomicDipole | B | N | N | |
| | | atomicDipole | AD | Y | N | Atomic dipoles (NAtoms * X,Y,Z) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |

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Table 9.1 – continued from previous page

| | | | | | | |
|--------------------------------------------|---|---------------------|----|---|---|--------------------------------------------------------------|
| MRCI_EFG_Tensor [EFG_Tensor] | Y | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elms | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | QFAC | D | N | Y | Prefactor |
| | | V | AD | N | Y | Raw tensor |
| | | VEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | VIso | D | N | Y | |
| MRCI_Polarizability [Polarizability] | Y | isotropicPolar | D | N | N | |
| | | rawCartesian | AD | N | N | a.u. |
| | | diagonalizedTensor | AD | N | N | |
| | | orientation | AD | N | N | |
| | | doAtomicPolar | B | N | N | |
| | | atomicPolarIso | AD | Y | N | Atomic isotropic polarizabilities |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MRCI_Quadrupole_Moment [Quadrupole_Moment] | Y | isotropicQuadMoment | D | N | N | a.u. |
| | | quadElecContrib | AD | N | N | Electronic contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadNucContrib | AD | N | N | Nuclear contribution. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadTotal | AD | N | N | Total. Order: XX, YY, ZZ, XY, XZ, YZ |
| | | quadDiagonalized | AD | N | N | The diagonalized tensor |
| | | doAtomicQuad | B | N | N | |
| | | atomicQuad | AD | Y | N | Atomic quadrupoles (NAtoms * XX, YY, ZZ, XY, XZ, YZ) |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| MRCI_A_Tensor [A_Tensor] | Y | numOfNucs | I | N | N | Number of active nuclei |
| | | Method | S | N | N | |
| | | Level | S | N | N | |
| | | Mult | I | N | N | |
| | | State | I | N | N | |
| | | Irrep | I | N | N | |
| | | NUC | I | N | Y | Index of the nuclei |
| | | Elem | I | N | Y | Atomic number of the nuclei |
| | | Isotope | D | N | Y | Atomic mass |
| | | I | D | N | Y | Spin of the nuclei |
| | | PFAC | D | N | Y | Prefactor PFAC=geg/Nbe*bN (in MHz) |
| | | ARaw | AD | N | Y | Raw tensor |
| | | AEigenvalues | AD | N | Y | Eigenvalues |
| | | orientation | AD | N | Y | Eigenvectors |
| | | AIso | D | N | Y | |
| MRCI_Chemical_Shift [Chemical_Shift] | Y | numOfNucs | I | N | N | |
| | | Method | S | N | N | |
| | | Level | S | N | N | |

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