

Supporting Information

Insight Into the Preferential *N*-binding versus *O*-binding of Nitrosoarenes to Ferrous and Ferric Heme Centers

Erwin G. Abucayon,^a Jia-Min Chu,^b Megan Ayala,^a Rahul L. Khade,^b Yong Zhang,^{* b} George B. Richter-Addo^{* a}

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Protocol for Liquid Chromatography and Mass Spectrometry. Sample introduction was performed using a Waters (Milford, MA) Acquity Ultra High-Pressure Liquid Chromatography (UPLC) M-Class system. Optimum LCMS Grade Methanol (Fisher Scientific, Pittsburg, PA) was used as mobile phase carrier at 20 μL/min for injection of 2 μL sample. The UPLC eluent was introduced into a Waters G2-Si Ion Mobility Q-TOF Mass Spectrometer equipped with an electrospray ionization source operated in positive ion mode. Nitrogen gas was used as a nebulizing and drying gas with a drying gas temperature of 325°C at 10 L/min flow rate. Capillary voltage was set at 3.2kV. Data was collected and analyzed with Mass Lynx Software (V4.1, 2015).

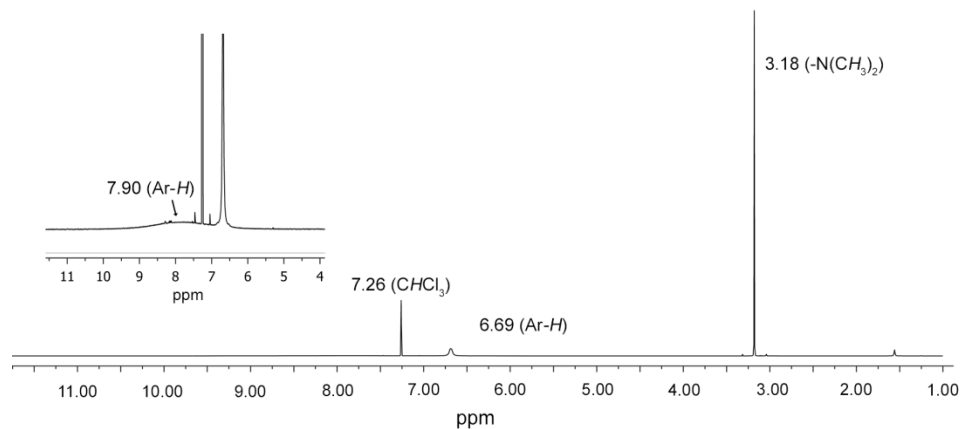


Figure S1. ^1H NMR spectrum of NODMA in CDCl_3 at $25\text{ }^\circ\text{C}$. Inset is the zoomed-in aromatic region showing a broad peak assigned to *ortho*-Ar-H to the NO group. The spectrum is the same as that reported for the ^{15}N -labeled analog¹⁻³

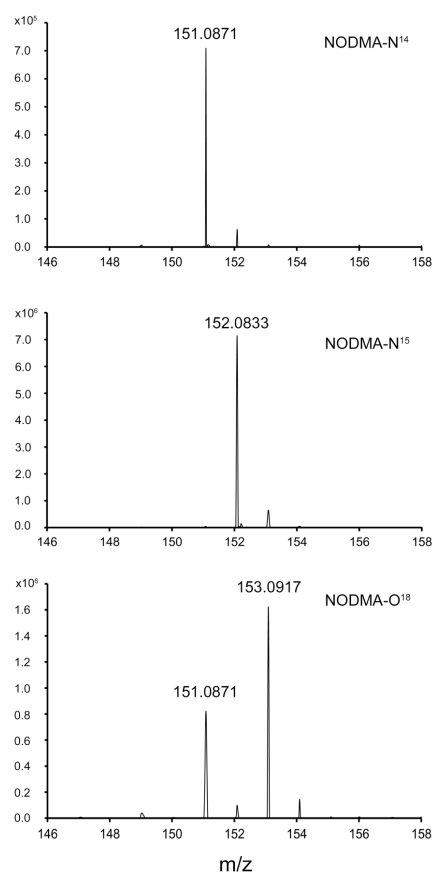


Figure S2. Truncated mass spectra for (*top*) unlabeled (^{14}N -nitroso) NODMA; (*middle*) ^{15}N -nitroso NODMA; and (*bottom*) $^{18}/^{16}\text{O}$ -nitroso NODMA in a 2:1 ratio, showing their respective molecular ion peaks (positive ion mode).

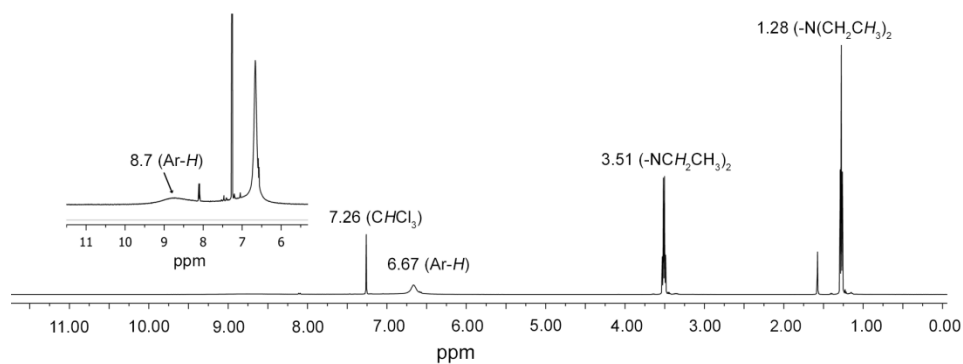


Figure S3. ^1H NMR spectrum of NODEA in CDCl_3 at 25 °C. Inset is the zoomed-in aromatic region showing a broad peak assigned to *ortho*-Ar-H to the NO group. The spectrum is the same as that reported for the labeled analog.^{1,3}

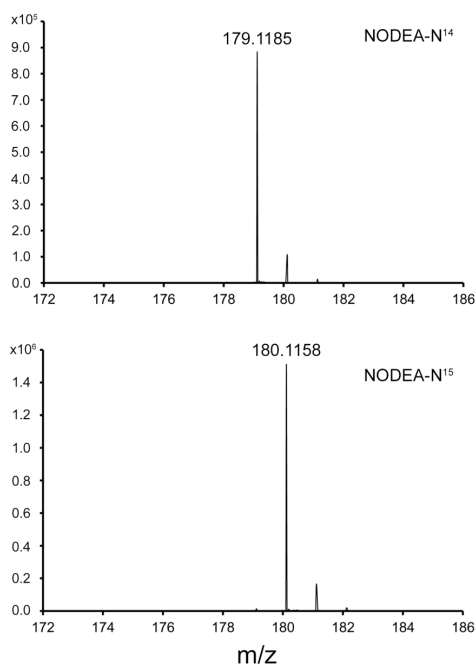


Figure S4. Truncated mass spectra for (*top*) unlabeled (^{14}N -nitroso) NODEA; and (*bottom*) ^{15}N -nitroso NODEA, showing their respective molecular ion peaks (positive ion mode).

Figure S5. See separate movie file

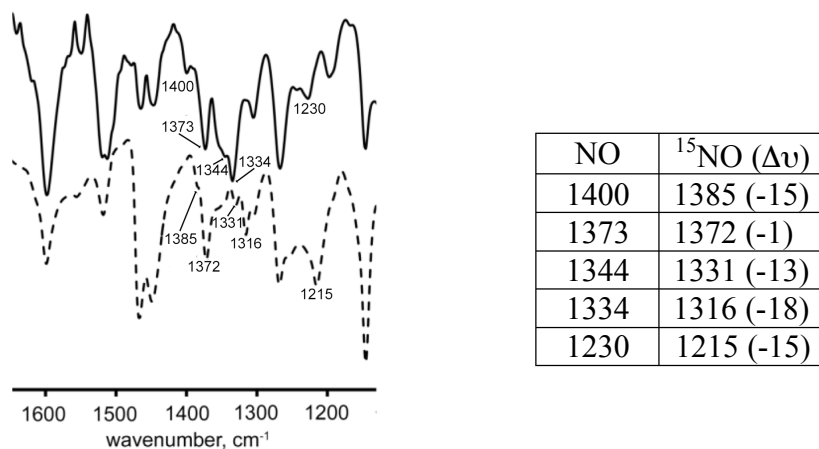


Figure S6. Truncated FTIR spectra of crystals of the unlabeled (¹⁴N-nitroso; solid line trace) and labeled (¹⁵N-nitroso; broken line trace) (OEP)Fe(NODEA)(NH₂C₆H₄NEt₂-*p*) as KBr pellets, highlighting bands that shift with ¹⁵N-nitroso substitution.

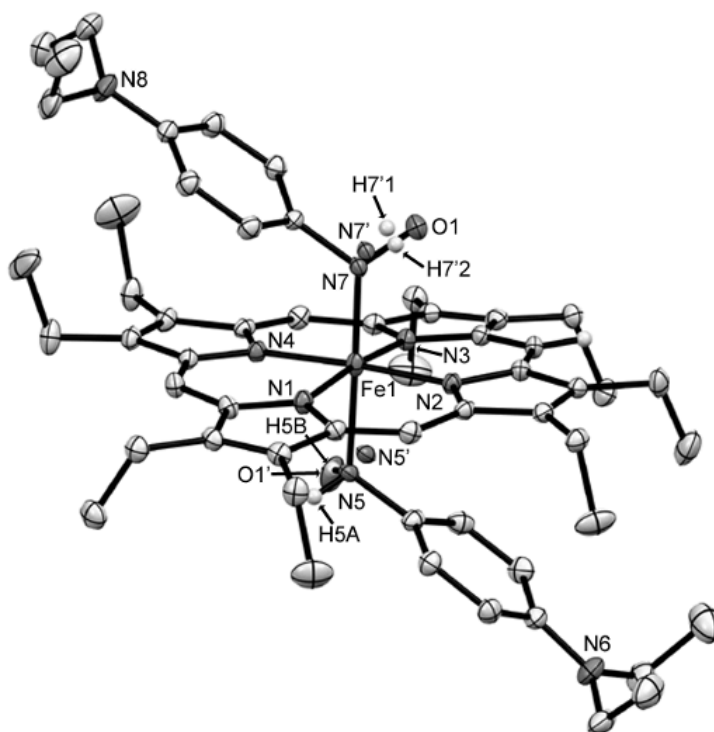


Figure S7. Molecular structure of (OEP)Fe(NODEA)(NH₂C₆H₄NEt₂-*p*) showing the disordered fragments, with thermal ellipsoids drawn at 35% probability. Hydrogen atoms except for those of the NH₂ moieties have been omitted for clarity.

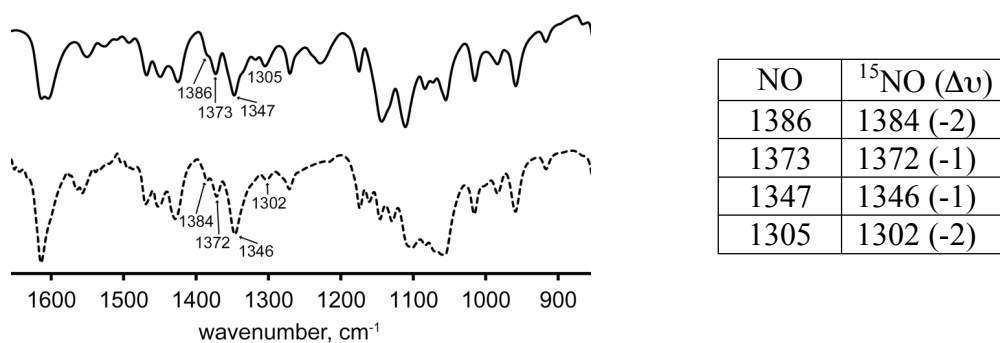


Figure S8. Truncated FTIR spectra (KBr pellets) of crystals of the unlabeled (¹⁴N-nitroso; solid line trace) and labeled (¹⁵N-nitroso; broken line trace) [(OEP)Fe(NODEA)]SbF₆ adducts obtained from the reactions of (OEP)Fe(FSbF₅) with unlabeled and ¹⁵N-nitroso labeled NODEA, respectively, highlighting bands that shift with ¹⁵N-nitroso substitution.

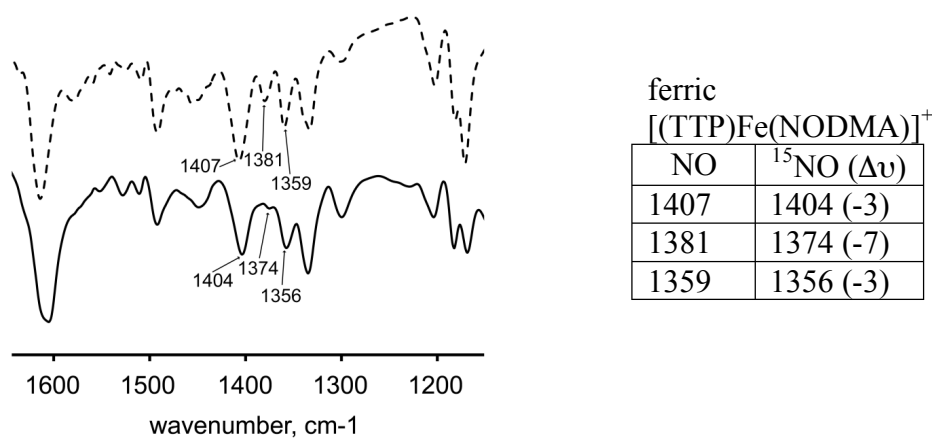
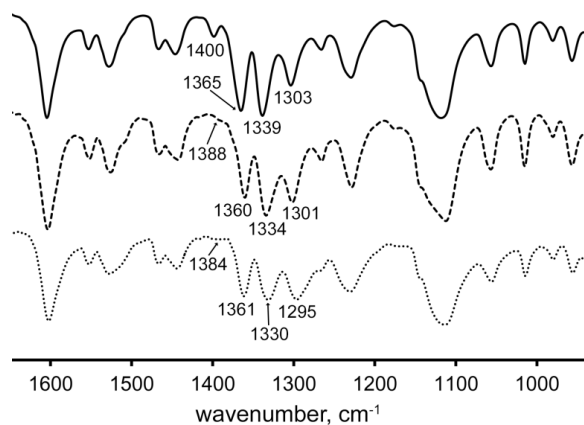


Figure S9. Truncated FTIR spectra (KBr pellets) of crystals of the unlabeled (¹⁴N-nitroso; solid line trace) and labeled (¹⁵N-nitroso; broken line trace) [(TTP)Fe(NODMA)]SbF₆ adducts obtained from the reactions of (TTP)Fe(FSbF₅) with unlabeled and ¹⁵N-nitroso labeled NODMA, respectively, highlighting bands that shift with ¹⁵N-nitroso substitution.



| NO | ¹⁵ NNO ($\Delta\nu$) | N ¹⁸ O ($\Delta\nu$) |
|------|-----------------------------------|-----------------------------------|
| 1400 | 1388 (-12) | 1384 (-16) |
| 1365 | 1360 (-5) | 1361 (-4) |
| 1339 | 1334 (-5) | 1330 (-9) |
| 1303 | 1301 (-2) | 1295 (-8) |

Figure S10. Truncated FTIR spectra (KBr pellets) of crystals of the unlabeled (¹⁴N-nitroso; solid line trace) and labeled (¹⁵N-nitroso = broken line trace, and ¹⁸O-nitroso = dotted line trace) product prepared from the in situ reduction of (OEP)FeCl by Zn/Hg followed by reaction with excess NODMA, highlighting bands that shift with ¹⁵N- and ¹⁸O-nitroso substitution.

Table S1. Crystal Data and Structural Refinement

| Compound | (OEP)Fe(NODEA)(NH ₂ C ₆ H ₄ NEt ₂ -p) ^a | [(OEP)Fe(NODEA)]SbF ₆ •(CH ₂ Cl ₂) ^b | [(TTP)Fe(NODMA)]SbF ₆ ^b |
|--|--|---|---|
| CCDC | 2011046 | 2011047 | 2011048 |
| Empirical Formula | C ₅₆ H ₇₄ FeN ₈ O | C ₄₇ H ₆₀ FeN ₆ OCl ₂ F ₆ Sb | C ₅₆ H ₄₆ FeN ₆ O ₁ F ₆ Sb |
| Formula weight | 931.08 | 1087.51 | 1110.59 (1181.485) ^c |
| Crystal system | Monoclinic | Triclinic | Monoclinic |
| Space group | P2 ₁ /n | P $\bar{1}$ | P2 ₁ /c |
| <i>a</i> (Å), α (°) | 14.1052(13), 90 | 13.2553(8), 79.6981(10) | 21.4336(11), 90 |
| <i>b</i> (Å), β (°) | 14.6434(15), 105.549(3) | 13.6557(8), 77.0265(10) | 15.7973(8), 97.599(2) |
| <i>c</i> (Å), γ (°) | 24.980(2), 90 | 15.0672(9), 64.4348(9) | 16.4555(8), 90 |
| <i>V</i> , <i>Z</i> / <i>Z'</i> | 4970.7(8) Å ³ , 4 | 2387.1(2) Å ³ , 2 | 5522.8(5) Å ³ , 4 |
| <i>D</i> (calcd), g/cm ³ | 1.244 | 1.513 | 1.336 (1.421) ^c |
| Abs coeff, mm ⁻¹ | 0.352 | 1.048 | 0.814 (0.91) ^c |
| <i>F</i> (000) | 2000 | 1114 | 2252 |
| Crystal size (mm) | 0.040 x 0.156 x 0.173 | 0.080 x 0.240 x 0.420 | 0.024 x 0.132 x 0.233 |
| θ range for data collection | 2.191–27.366° | 1.393–29.784° | 2.310–25.383° |
| Reflections collected | 72590 | 55564 | 80385 |
| Independent reflns | 11216 [R _{int} = 0.0828] | 13621 [R _{int} = 0.0400] | 10138 [R _{int} = 0.0842] |
| Data / restraints / parameters | 11216 / 51 / 611 | 13621 / 624 / 654 | 10138 / 1157 / 708 |
| Goodness-of-fit on <i>F</i> ² | 1.027 | 1.005 | 1.053 |
| Final R indices [I > 2σ(I)] | R1 = 0.0468 | R1 = 0.0417 | R1 = 0.0636 |
| R indices (all data) | wR2 = 0.1064 | wR2 = 0.1056 | wR2 = 0.1637 |
| Largest diff. peak and hole, e.Å ⁻³ | 0.419 and -0.732 | 1.495 and -0.573 | 0.573 d -0.965 |

^a Using a D8 Quest κ -geometry diffractometer with a Bruker Photon II cmos area detector and an Incoatec I μ s microfocus Mo K α source.

^b Using a diffractometer with a Bruker APEX ccd area detector and graphite-monochromated Mo K α radiation.

^c Data in brackets represent corresponding values when the squeezed solvent is included.

Cartesian coordinates of DFT-optimized iron porphyrins with favorable spin states

(i) Fe^{II}-N (bis NODMA) S=0

| | | | |
|----|-------------|------------|-------------|
| Fe | 3.41371700 | 3.43764000 | 5.27106300 |
| O | 4.67688700 | 5.61569800 | 3.98042700 |
| N | 1.64173100 | 4.10455300 | 5.97380000 |
| N | 2.75701200 | 3.64969800 | 3.37451900 |
| N | 4.30801300 | 5.25261300 | 5.07353200 |
| N | 6.49356100 | 8.12552800 | 9.35725700 |
| C | 1.24786800 | 4.16128100 | 7.27716200 |
| C | -0.12805600 | 4.59229900 | 7.36308300 |
| H | -0.67758500 | 4.72706200 | 8.28622400 |
| C | -0.55909300 | 4.77027300 | 6.08998500 |
| H | -1.53724300 | 5.08184300 | 5.74599700 |
| C | 0.55384800 | 4.44388100 | 5.22860200 |
| C | 0.49152400 | 4.43123000 | 3.84214100 |
| C | 1.52224500 | 4.06518400 | 2.98783100 |
| C | 1.43702200 | 4.11340700 | 1.54532300 |
| H | 0.55856700 | 4.41037100 | 0.98649800 |
| C | 2.65271200 | 3.74287000 | 1.07613300 |
| H | 2.98548400 | 3.66760300 | 0.04856400 |
| C | 3.47137300 | 3.46067200 | 2.23215800 |
| C | 4.79675800 | 3.05661600 | 2.17125700 |
| C | 4.85194000 | 6.00460900 | 6.15007700 |
| C | 4.08783600 | 6.24836500 | 7.28873200 |
| H | 3.06474000 | 5.89833000 | 7.33077900 |
| C | 4.61891800 | 6.97130900 | 8.33826300 |
| H | 3.99280700 | 7.15972800 | 9.20121400 |
| C | 5.95291400 | 7.43877300 | 8.29808700 |
| C | 6.71270100 | 7.17386900 | 7.13336000 |
| H | 7.74509700 | 7.49340700 | 7.06468700 |
| C | 6.16088200 | 6.48587600 | 6.07110300 |
| H | 6.75083600 | 6.26938800 | 5.18669600 |
| C | 5.75464700 | 8.22645500 | 10.59922900 |
| C | 7.88194500 | 8.53458100 | 9.32005600 |
| N | 5.19571000 | 2.78784200 | 4.56866900 |
| N | 4.06956000 | 3.21578700 | 7.16867100 |
| C | 5.59583200 | 2.75222600 | 3.26618600 |
| C | 6.97830100 | 2.34414000 | 3.18143900 |
| H | 7.53400700 | 2.22912200 | 2.25931000 |
| C | 7.40575000 | 2.15400600 | 4.45444500 |
| H | 8.38652600 | 1.85099100 | 4.79865600 |
| C | 6.28469700 | 2.45227200 | 5.31477000 |
| C | 6.33847500 | 2.44237500 | 6.70154000 |
| C | 5.30205400 | 2.79265700 | 7.55545300 |

| | | | |
|---|-------------|-------------|-------------|
| C | 5.38345100 | 2.73335200 | 8.99752100 |
| H | 6.25906500 | 2.42778400 | 9.55619900 |
| C | 4.16940100 | 3.10968400 | 9.46674500 |
| H | 3.83552900 | 3.18241000 | 10.49415900 |
| C | 3.35565900 | 3.40594600 | 8.31107700 |
| C | 2.04001100 | 3.84107500 | 8.37217300 |
| O | 2.09080400 | 1.29702700 | 6.54258700 |
| N | 2.52254600 | 1.62283600 | 5.46029600 |
| N | 0.69553000 | -1.51931500 | 1.19729400 |
| C | 2.06688900 | 0.81245700 | 4.38569400 |
| C | 2.89527900 | 0.56798900 | 3.29280600 |
| H | 3.89933800 | 0.97025900 | 3.28422900 |
| C | 2.45397500 | -0.22196000 | 2.24985100 |
| H | 3.12939700 | -0.40869400 | 1.42444300 |
| C | 1.14712200 | -0.76175400 | 2.24888500 |
| C | 0.31895800 | -0.49342400 | 3.36585400 |
| H | -0.69682400 | -0.86719300 | 3.40053200 |
| C | 0.78183500 | 0.26385200 | 4.42261100 |
| H | 0.14008700 | 0.47885000 | 5.27037200 |
| C | 1.50570700 | -1.64722900 | 0.00332100 |
| H | 2.45056500 | -2.16455700 | 0.21253400 |
| H | 0.96267300 | -2.23438000 | -0.73849100 |
| H | 1.73883000 | -0.66873800 | -0.43873500 |
| C | -0.66524500 | -2.01413800 | 1.19312300 |
| H | -1.40348100 | -1.19936200 | 1.18920300 |
| H | -0.82413300 | -2.62085100 | 0.30054500 |
| H | -0.85865600 | -2.64994600 | 2.06553000 |
| H | -0.44670100 | 4.73436700 | 3.38607200 |
| H | 5.24805300 | 2.97064100 | 1.18689700 |
| H | 7.27634800 | 2.13916000 | 7.15827800 |
| H | 4.82720900 | 8.79813500 | 10.46900400 |
| H | 5.49646200 | 7.23763600 | 11.00306400 |
| H | 6.36419900 | 8.74753300 | 11.33877800 |
| H | 8.07786700 | 9.19196600 | 8.46456600 |
| H | 8.11567400 | 9.09487500 | 10.22646300 |
| H | 8.56756300 | 7.67683200 | 9.26059700 |
| H | 1.59064900 | 3.93741300 | 9.35646400 |

(ii) Fe^{II}-O (bis NODMA) $S = 0$

| | | | |
|----|------------|------------|------------|
| Fe | 3.94447600 | 5.24617900 | 4.93258200 |
| O | 5.54356200 | 5.20137600 | 6.10572100 |
| N | 3.00283300 | 6.52092700 | 6.18079700 |
| N | 3.20624600 | 3.68192600 | 5.97079600 |
| N | 4.88618800 | 3.97144500 | 3.68441300 |

| | | | |
|---|-------------|-------------|-------------|
| N | 4.68271000 | 6.81044500 | 3.89438600 |
| N | 5.98203700 | 6.24458300 | 6.57497600 |
| N | 10.43016500 | 5.93824600 | 9.91144000 |
| C | 3.02941600 | 7.88005800 | 6.13210700 |
| C | 2.24108700 | 8.43656700 | 7.20786700 |
| H | 2.10033200 | 9.49482200 | 7.38991400 |
| C | 1.74126400 | 7.38566700 | 7.90325600 |
| H | 1.10335300 | 7.39658100 | 8.77826600 |
| C | 2.22709700 | 6.19212800 | 7.24909100 |
| C | 1.93709800 | 4.90022500 | 7.66482500 |
| C | 2.39526700 | 3.73730200 | 7.06185400 |
| C | 2.06855600 | 2.40362300 | 7.51279200 |
| H | 1.43836600 | 2.17397100 | 8.36297500 |
| C | 2.69794000 | 1.54746800 | 6.67096800 |
| H | 2.69520400 | 0.46455500 | 6.68316400 |
| C | 3.40646200 | 2.36189100 | 5.71022700 |
| C | 4.17627600 | 1.85480100 | 4.67336000 |
| C | 4.85974800 | 2.61231500 | 3.73321700 |
| C | 5.64798700 | 2.05580000 | 2.65739400 |
| H | 5.78884900 | 0.99754400 | 2.47543000 |
| C | 6.14754100 | 3.10669300 | 1.96180300 |
| H | 6.78531400 | 3.09577500 | 1.08669100 |
| C | 5.66170800 | 4.30023600 | 2.61596000 |
| C | 5.95158900 | 5.59213900 | 2.20014900 |
| C | 5.49356300 | 6.75506000 | 2.80323600 |
| C | 5.82041000 | 8.08873600 | 2.35238800 |
| H | 6.45052000 | 8.31838200 | 1.50214300 |
| C | 5.19131700 | 8.94490000 | 3.19442000 |
| H | 5.19423100 | 10.02781400 | 3.18234400 |
| C | 4.48274000 | 8.13048600 | 4.15512700 |
| C | 3.71303500 | 8.63757700 | 5.19207200 |
| C | 7.09812000 | 6.08691800 | 7.39579500 |
| C | 7.61651200 | 7.26334600 | 7.94863500 |
| H | 7.12974700 | 8.20350500 | 7.70683800 |
| C | 8.71698200 | 7.22542400 | 8.78000600 |
| H | 9.09538700 | 8.15183400 | 9.19305800 |
| C | 9.34052500 | 5.99156200 | 9.08755600 |
| C | 8.80178200 | 4.80581800 | 8.51593400 |
| H | 9.25318900 | 3.84465800 | 8.72841100 |
| C | 7.70450800 | 4.85356100 | 7.68877300 |
| H | 7.29384000 | 3.94800100 | 7.25460100 |
| C | 10.96373300 | 7.15614800 | 10.48911600 |
| H | 11.82153400 | 6.91106100 | 11.11609600 |
| H | 10.22012800 | 7.66438000 | 11.11639200 |
| H | 11.30015200 | 7.85685500 | 9.71413600 |
| C | 11.05592300 | 4.66593000 | 10.21631000 |

| | | | |
|---|-------------|------------|-------------|
| H | 11.43344300 | 4.17387500 | 9.31097400 |
| H | 10.35913900 | 3.98240200 | 10.71798400 |
| H | 11.90131900 | 4.83335900 | 10.88438000 |
| H | 6.59159900 | 5.70244100 | 1.32900700 |
| H | 4.24675200 | 0.77368700 | 4.58824800 |
| H | 1.29694600 | 4.78993500 | 8.53586400 |
| H | 3.64271700 | 9.71869200 | 5.27730300 |
| O | 2.34543700 | 5.29094100 | 3.75954000 |
| N | 1.90704100 | 4.24776500 | 3.29013800 |
| C | 0.79090000 | 4.40548500 | 2.46939800 |
| C | 0.27252100 | 3.22909700 | 1.91647300 |
| C | 0.18440600 | 5.63884000 | 2.17664900 |
| H | 0.75935300 | 2.28893600 | 2.15812500 |
| C | -0.82804300 | 3.26705500 | 1.08522200 |
| C | -0.91294000 | 5.68662300 | 1.34958600 |
| H | 0.59498900 | 6.54435600 | 2.61099400 |
| H | -1.20644300 | 2.34066500 | 0.67213200 |
| C | -1.45160400 | 4.50093300 | 0.77776300 |
| H | -1.36454600 | 6.64776000 | 1.13744200 |
| N | -2.54120400 | 4.55432200 | -0.04619500 |
| C | -3.07645400 | 3.33617300 | -0.62178100 |
| C | -3.16770200 | 5.82650800 | -0.35004400 |
| H | -3.93460400 | 3.58127000 | -1.24828300 |
| H | -3.41269900 | 2.63666500 | 0.15437200 |
| H | -2.33390700 | 2.82657100 | -1.24918400 |
| H | -2.47081400 | 6.51112300 | -0.85002100 |
| H | -3.54673600 | 6.31721700 | 0.55542700 |
| H | -4.01202700 | 5.65927200 | -1.01952000 |

(iii) Fe^{III}-O (mono NODMA) $S = 3/2$

| | | | |
|----|-------------|------------|-------------|
| Fe | 3.90795600 | 5.33070000 | 4.94146300 |
| O | 5.57465900 | 5.08919500 | 6.15002500 |
| N | 2.83853900 | 6.40499300 | 6.22665400 |
| N | 2.99395900 | 3.68569900 | 5.58733700 |
| N | 4.65382200 | 4.28992200 | 3.41907900 |
| N | 4.49644200 | 7.00964400 | 4.05597800 |
| N | 5.95263900 | 6.14027300 | 6.72436800 |
| N | 10.33336300 | 6.00541500 | 10.05673000 |
| C | 2.85909600 | 7.76859500 | 6.38742400 |
| C | 2.07184600 | 8.15427800 | 7.52017200 |
| H | 1.92308500 | 9.17530200 | 7.84529400 |
| C | 1.57468800 | 7.01288400 | 8.05867100 |
| H | 0.93077500 | 6.89636500 | 8.92009000 |
| C | 2.05542600 | 5.93163900 | 7.25146000 |
| C | 1.75113600 | 4.60774200 | 7.48485900 |

| | | | |
|---|-------------|-------------|-------------|
| C | 2.18638000 | 3.56708400 | 6.69274500 |
| C | 1.83643000 | 2.19635300 | 6.91649100 |
| H | 1.20266200 | 1.84825900 | 7.72107500 |
| C | 2.43730300 | 1.47402400 | 5.93816300 |
| H | 2.40281700 | 0.40620300 | 5.76852700 |
| C | 3.15725400 | 2.40375800 | 5.12045600 |
| C | 3.90756700 | 2.03783600 | 4.02376700 |
| C | 4.60180100 | 2.92932500 | 3.23450200 |
| C | 5.38027900 | 2.54504400 | 2.09542000 |
| H | 5.48833900 | 1.52888900 | 1.74051400 |
| C | 5.91712500 | 3.68195400 | 1.58629200 |
| H | 6.55946200 | 3.79850300 | 0.72372000 |
| C | 5.46225200 | 4.75998400 | 2.41226400 |
| C | 5.79369100 | 6.08075600 | 2.19866800 |
| C | 5.32812000 | 7.12496900 | 2.96846000 |
| C | 5.64954200 | 8.49925000 | 2.72384000 |
| H | 6.28044500 | 8.84760800 | 1.91710500 |
| C | 5.00867100 | 9.22591800 | 3.67316000 |
| H | 5.00115200 | 10.29874100 | 3.81207500 |
| C | 4.30032000 | 8.29443400 | 4.49916700 |
| C | 3.53881200 | 8.66168900 | 5.58759800 |
| C | 7.03219700 | 6.02458100 | 7.52286900 |
| C | 7.45185600 | 7.21675000 | 8.16635300 |
| H | 6.88786200 | 8.12477800 | 7.97671200 |
| C | 8.53449000 | 7.22146200 | 9.00002600 |
| H | 8.83187400 | 8.14585800 | 9.47678600 |
| C | 9.26665800 | 6.01688300 | 9.23912200 |
| C | 8.83351300 | 4.81476800 | 8.58252100 |
| H | 9.36811800 | 3.88797200 | 8.74491800 |
| C | 7.75279800 | 4.81900700 | 7.75256400 |
| H | 7.42858400 | 3.90960000 | 7.25890000 |
| C | 10.76787800 | 7.22942900 | 10.72319700 |
| H | 11.63794700 | 7.01068900 | 11.34006800 |
| H | 9.97966600 | 7.62431300 | 11.37278500 |
| H | 11.05037600 | 7.99559600 | 9.99352800 |
| C | 11.07872400 | 4.77258700 | 10.29551200 |
| H | 11.50101500 | 4.38061800 | 9.36442200 |
| H | 10.44127100 | 4.00846700 | 10.75244100 |
| H | 11.90071900 | 4.98039000 | 10.97857400 |
| H | 3.46544900 | 9.71730100 | 5.82552300 |
| H | 1.11587000 | 4.37238600 | 8.33168700 |
| H | 3.95087300 | 0.98586100 | 3.76381000 |
| H | 6.44485400 | 6.31405500 | 1.36342200 |

(iv) Fe^{III}-O (mono NODMA) $S = 5/2$

| | | | |
|----|-------------|-------------|-------------|
| Fe | 4.08298100 | 5.24795500 | 5.05335900 |
| O | 5.76348300 | 5.01456000 | 6.26854000 |
| N | 2.82883100 | 6.39043700 | 6.29685600 |
| N | 2.90403000 | 3.57572000 | 5.55635100 |
| N | 4.62930400 | 4.20570000 | 3.30641300 |
| N | 4.55717200 | 7.02490500 | 4.03597600 |
| N | 6.10566700 | 6.08290900 | 6.83130100 |
| N | 10.47838200 | 6.11529100 | 10.19121500 |
| C | 2.88362400 | 7.76049600 | 6.43980400 |
| C | 2.04286600 | 8.15590300 | 7.56117900 |
| H | 1.89165900 | 9.17278300 | 7.89891500 |
| C | 1.49489900 | 7.02102100 | 8.05452100 |
| H | 0.80435800 | 6.91586800 | 8.88089100 |
| C | 2.00382300 | 5.92858700 | 7.23923200 |
| C | 1.65010200 | 4.55887100 | 7.41159100 |
| C | 2.04898500 | 3.49819100 | 6.63623400 |
| C | 1.61042500 | 2.11927600 | 6.79881400 |
| H | 0.93131300 | 1.76779700 | 7.56440500 |
| C | 2.19762700 | 1.40595900 | 5.81012600 |
| H | 2.10023000 | 0.34919400 | 5.59919700 |
| C | 3.00111000 | 2.34537400 | 5.04389000 |
| C | 3.76474100 | 1.99828800 | 3.89230700 |
| C | 4.49067700 | 2.84993400 | 3.09700100 |
| C | 5.20402500 | 2.47861800 | 1.88345900 |
| H | 5.26081900 | 1.47818800 | 1.47512700 |
| C | 5.74171800 | 3.61677600 | 1.38655200 |
| H | 6.33169600 | 3.74090100 | 0.48807400 |
| C | 5.36226000 | 4.68586100 | 2.29699200 |
| C | 5.71108800 | 6.05577000 | 2.11544100 |
| C | 5.33120100 | 7.11714600 | 2.89930400 |
| C | 5.64674100 | 8.51665000 | 2.64986600 |
| H | 6.23564600 | 8.88477400 | 1.82009300 |
| C | 5.04698500 | 9.22954500 | 3.63165400 |
| H | 5.04453500 | 10.30242800 | 3.77234100 |
| C | 4.36783000 | 8.26753500 | 4.48614300 |
| C | 3.59168000 | 8.61369900 | 5.63025200 |
| C | 7.18780600 | 6.00965900 | 7.64142500 |
| C | 7.56867100 | 7.21838200 | 8.27246900 |
| H | 6.98032000 | 8.10835800 | 8.07112700 |
| C | 8.64773500 | 7.26425100 | 9.11233100 |
| H | 8.91500400 | 8.20249600 | 9.57995900 |
| C | 9.41317000 | 6.08600400 | 9.36815100 |
| C | 9.01780900 | 4.86619600 | 8.72435400 |
| H | 9.57707300 | 3.95635400 | 8.89942100 |

| | | | |
|---|-------------|------------|-------------|
| C | 7.94032100 | 4.83030300 | 7.88842300 |
| H | 7.64454700 | 3.90663100 | 7.40349200 |
| C | 10.87267600 | 7.35860600 | 10.84443600 |
| H | 11.74791800 | 7.17420900 | 11.46546200 |
| H | 10.07148300 | 7.73696900 | 11.48838900 |
| H | 11.13293700 | 8.12605700 | 10.10748100 |
| C | 11.25731000 | 4.90794600 | 10.44610500 |
| H | 11.69254100 | 4.51579200 | 9.52080500 |
| H | 10.64166100 | 4.13069900 | 10.91132000 |
| H | 12.07209500 | 5.14710300 | 11.12778100 |
| H | 3.53184500 | 9.67331600 | 5.86212100 |
| H | 0.96634500 | 4.34125700 | 8.22702700 |
| H | 3.74096000 | 0.95222300 | 3.60087100 |
| H | 6.31771000 | 6.28085900 | 1.24298400 |

(v) Fe^{III}-N (mono NODMA) $S = 3/2$

| | | | |
|----|-------------|------------|------------|
| Fe | 3.57032000 | 3.46746200 | 5.19445500 |
| N | 2.13142200 | 4.50776700 | 6.13504200 |
| N | 2.98905600 | 4.26513700 | 3.45007700 |
| C | 1.90279100 | 4.54504700 | 7.49858000 |
| C | 0.71349900 | 5.33645600 | 7.77797000 |
| H | 0.31946200 | 5.52836700 | 8.76690700 |
| C | 0.23480300 | 5.74419000 | 6.58648500 |
| H | -0.63775900 | 6.34843100 | 6.37804700 |
| C | 1.14016000 | 5.21552300 | 5.57905900 |
| C | 0.98353200 | 5.44695900 | 4.19397400 |
| C | 1.85211300 | 5.02450900 | 3.23107300 |
| C | 1.74653900 | 5.36041000 | 1.82073800 |
| H | 0.94751200 | 5.94493200 | 1.38482000 |
| C | 2.82874200 | 4.82989900 | 1.21735600 |
| H | 3.11323900 | 4.88011500 | 0.17481000 |
| C | 3.58808000 | 4.14889900 | 2.25272000 |
| C | 4.77827600 | 3.43864500 | 2.00346000 |
| N | 5.15295200 | 2.63885800 | 4.28022000 |
| N | 4.28247000 | 2.84680100 | 6.96509200 |
| C | 5.48426200 | 2.74100500 | 2.94680900 |
| C | 6.68191000 | 1.96172800 | 2.67198600 |
| H | 7.15588000 | 1.88058400 | 1.70283500 |
| C | 7.04855800 | 1.39411000 | 3.83920800 |
| H | 7.89089700 | 0.74623600 | 4.04088100 |
| C | 6.08812100 | 1.83875000 | 4.83185600 |
| C | 6.16296800 | 1.49322700 | 6.19373300 |
| C | 5.33730100 | 1.97934100 | 7.16916100 |
| C | 5.46339300 | 1.67536800 | 8.58616500 |
| H | 6.21094500 | 1.02019000 | 9.01267500 |

| | | | |
|---|-------------|-------------|-------------|
| C | 4.49384200 | 2.37044700 | 9.21279000 |
| H | 4.26570300 | 2.41062200 | 10.26936000 |
| C | 3.76605200 | 3.08710800 | 8.17815900 |
| C | 2.64867700 | 3.90942900 | 8.44510800 |
| O | 1.58096500 | 1.48801800 | 6.37283000 |
| N | 2.10400100 | 1.59425100 | 5.27527400 |
| N | 0.81125800 | -2.04617600 | 1.27319000 |
| C | 1.74777300 | 0.66164200 | 4.30797500 |
| C | 2.36218400 | 0.76457700 | 3.05004500 |
| H | 3.08525500 | 1.55334600 | 2.87967000 |
| C | 2.06203000 | -0.12260200 | 2.04295400 |
| H | 2.55589900 | -0.01643800 | 1.08573300 |
| C | 1.11871300 | -1.16480800 | 2.25611000 |
| C | 0.50312900 | -1.25597900 | 3.54053800 |
| H | -0.22032300 | -2.03568900 | 3.74185900 |
| C | 0.81150300 | -0.36679300 | 4.53723300 |
| H | 0.33962200 | -0.44263600 | 5.51070000 |
| C | 1.44624900 | -1.93934800 | -0.03061700 |
| H | 2.53419700 | -2.05390400 | 0.04466200 |
| H | 1.06862600 | -2.72869200 | -0.67961400 |
| H | 1.22396500 | -0.97586100 | -0.50454300 |
| C | -0.15415700 | -3.10954500 | 1.51022100 |
| H | -1.14052300 | -2.70432900 | 1.76391300 |
| H | -0.25832200 | -3.70602900 | 0.60454600 |
| H | 0.17423900 | -3.77443100 | 2.31738200 |
| H | 6.96156900 | 0.82209800 | 6.49208800 |
| H | 5.15029400 | 3.43455500 | 0.98425500 |
| H | 0.12988100 | 6.04060500 | 3.88413200 |
| H | 2.35154800 | 4.01673800 | 9.48302200 |

(vi) Fe^{III}-N (mono NODMA) $S = 5/2$

| | | | |
|----|-------------|------------|------------|
| Fe | 3.44959700 | 3.27847200 | 5.19487300 |
| N | 2.05384900 | 4.47729700 | 6.19194900 |
| N | 2.96400600 | 4.23280400 | 3.40600700 |
| C | 1.83314600 | 4.50736200 | 7.55473100 |
| C | 0.66207000 | 5.33202700 | 7.82368600 |
| H | 0.25762900 | 5.53658300 | 8.80601800 |
| C | 0.21556600 | 5.77577100 | 6.62716100 |
| H | -0.63041200 | 6.41916000 | 6.42527600 |
| C | 1.11246100 | 5.22422000 | 5.61963500 |
| C | 1.00927100 | 5.47092800 | 4.21803300 |
| C | 1.85866800 | 5.04041400 | 3.22634900 |
| C | 1.77554200 | 5.41831900 | 1.82509700 |
| H | 1.00981300 | 6.05149900 | 1.39686000 |
| C | 2.84079600 | 4.85815000 | 1.20409600 |

| | | | |
|---|-------------|-------------|-------------|
| H | 3.12309200 | 4.93565900 | 0.16247600 |
| C | 3.57378300 | 4.12143400 | 2.21826300 |
| C | 4.77010600 | 3.38898100 | 1.98421800 |
| N | 5.18239200 | 2.57826700 | 4.24816600 |
| N | 4.29476100 | 2.83877400 | 7.04358500 |
| C | 5.50900000 | 2.69515300 | 2.91669500 |
| C | 6.75742900 | 1.98972700 | 2.67069000 |
| H | 7.25495300 | 1.91864600 | 1.71248100 |
| C | 7.15696300 | 1.47940900 | 3.86013600 |
| H | 8.04846400 | 0.90552100 | 4.07539900 |
| C | 6.15773100 | 1.87431700 | 4.83768900 |
| C | 6.23478500 | 1.58645400 | 6.23101900 |
| C | 5.40157000 | 2.03336200 | 7.22731700 |
| C | 5.55378500 | 1.76272100 | 8.64892900 |
| H | 6.33986000 | 1.16241600 | 9.08735100 |
| C | 4.54662000 | 2.41161200 | 9.27897900 |
| H | 4.33625400 | 2.44927800 | 10.33948000 |
| C | 3.76933200 | 3.07493800 | 8.24535500 |
| C | 2.60516100 | 3.86925700 | 8.48831000 |
| O | 1.59774500 | 1.41447400 | 6.34817400 |
| N | 2.10078100 | 1.52414800 | 5.23897800 |
| N | 0.75557400 | -2.07375400 | 1.22876200 |
| C | 1.73790000 | 0.60724600 | 4.26803400 |
| C | 2.34773000 | 0.71030100 | 3.00556100 |
| H | 3.08156500 | 1.48867500 | 2.83103200 |
| C | 2.03247000 | -0.16874100 | 1.99838100 |
| H | 2.52321100 | -0.06487000 | 1.03949100 |
| C | 1.07756100 | -1.20233000 | 2.21240200 |
| C | 0.46738800 | -1.29292400 | 3.50088400 |
| H | -0.26427200 | -2.06472400 | 3.70228400 |
| C | 0.79120600 | -0.41322900 | 4.49913800 |
| H | 0.32361200 | -0.48771500 | 5.47463800 |
| C | 1.38393200 | -1.96809000 | -0.07964400 |
| H | 2.47059100 | -2.09518800 | -0.01061700 |
| H | 0.99348900 | -2.75051500 | -0.72917500 |
| H | 1.16840600 | -1.00028400 | -0.54714300 |
| C | -0.22094800 | -3.12846700 | 1.46513600 |
| H | -1.20123500 | -2.71288200 | 1.72453500 |
| H | -0.33512000 | -3.71931500 | 0.55716800 |
| H | 0.10463700 | -3.79996800 | 2.26758000 |
| H | 7.07538900 | 0.97189700 | 6.54017600 |
| H | 5.14785500 | 3.40138400 | 0.96603200 |
| H | 0.18570600 | 6.10789300 | 3.90865800 |
| H | 2.31208200 | 3.97716600 | 9.52839500 |

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