

Research Publications and Activities:

A. Publications

1. R.T. Paine and R.W. Parry, "The Synthesis of Tetrafluorodiphosphine Bis[borane(3)]," *Inorg. Chem.*, **11**, 210 (1972).
2. R.T. Paine and R.W. Parry, "The Acid-Assisted Base-Displacement Reaction: The Preparation of Halodifluorophosphine and Carbonyl Triborane(7) Complexes," *Inorg. Chem.*, **11**, 268 (1972).
3. R.T. Paine and R.W. Parry, "The Synthesis, Characterization and Stability of Halodifluorophosphine Borane(3) and Tetra-borane(8) Complexes," *Inorg. Chem.*, **11**, 1237 (1972).
4. R.T. Paine, G. Sodeck and F.E. Stafford, "Molecular Beam Mass Spectra and Pyrolyses of Fluorophosphine Triborane(7) Complexes. Formation and Mass Spectrum of Triborane(7)," *Inorg. Chem.*, **11**, 2593 (1972).
5. R.T. Paine, "Partial Hydrolysis of Rhenium and Osmium Hexafluorides. An Improved Synthesis and Characterization of ReOF_4 ," *Inorg. Chem.*, **12**, 1457 (1973).
6. R.T. Paine, K.L. Treuil and F.E. Stafford, "Vibrational Spectra of ReOF_4 ," *Spectrochim. Acta*, **29**, 1891 (1973).
7. L.B. Asprey and R.T. Paine, "One Electron Reduction Synthesis of Uranium Pentafluoride," *Chem. Comm.*, 920 (1973).
8. R.T. Paine and L.B. Asprey, "Reductive Fluoride Elimination Synthesis of Transition Metal Fluorides. The Synthesis of Molybdenum Pentafluoride and Molybdenum Tetrafluoride," *Inorg. Chem.*, **13**, 1519 (1974).
9. R.T. Paine and R.S. McDowell, "Gas Phase Composition and Structure of Metal Oxide Tetrafluorides," *Inorg. Chem.*, **13**, 2366 (1974).
10. R.S. McDowell, L.B. Asprey and R.T. Paine, "Vibrational Structure Analysis of Uranium Hexafluoride," *J. Chem. Phys.*, **61**, 3571 (1974).
11. R.T. Paine, R.R. Ryan and L.B. Asprey, "Synthesis, Characterization and Molecular Structure of Uranium Oxide Tetrafluoride," *Inorg. Chem.*, **14**, 1113 (1975).
12. R.T. Paine and L.B. Asprey, "Reductive Fluoride Elimination Syntheses. The Synthesis and Characterization of Pentafluorides and Tetrafluorides of Rhenium, Osmium and Iridium," *Inorg. Chem.*, **14**, 1111 (1975).
13. R.T. Paine and R.W. Parry, "Preparation of Bis-(Halodifluorophosphine)-Diborane(4) Complexes," *Inorg. Chem.*, **14**, 689 (1975).
14. R.T. Paine, S.B. Roeder and E. Fukushima, "NMR of Solid Triborohydride Salts," *Chem. Phys. Lett.*, **32**, 566 (1975).
15. R.T. Paine and L.A. Quarterman, "Solution Properties of Inorganic Pentafluorides and Oxide Tetrafluorides in Anhydrous Hydrogen Fluoride," *J. Inorg. Nucl. Chem.*, H.H. Hyman, Memorial Issue, p. 85, 1976.
16. R.T. Paine, R.S. McDowell, L.B. Asprey and L.H. Jones, "Vibrational Spectroscopy of Matrix Isolated UF_6 and UF_5 ," *J. Chem. Phys.*, **64**, 3081 (1976).
17. R.R. Ryan, R.A. Penneman, L.B. Asprey and R.T. Paine, "Single Crystal X-Ray Study of $\beta\text{-UF}_5$; The Eight Coordination of U(V)," *Acta Cryst.*, **32B**, 3111 (1976).

18. W.B. Lewis, L.B. Asprey, R.S. McDowell, L.H. Jones and R.T. Paine, "Electronic Spectroscopy of Matrix Isolated UF₆," *J. Chem. Phys.*, **65**, 2707 (1976).
19. E. Fukushima, R.T. Paine and S.B. Roeder, "Boron-11 NMR Study of the Large Angle Anisotropic Motion of B₃H₈⁻ in (CH₄)₄NH₃H₈," *J. Chem. Phys.*, **67**, 1614 (1977).
20. R.T. Paine and L.B. Asprey, "Metal Pentafluorides," *Inorg. Syn.*, **19**, 137 (1978).
21. R.T. Paine, "Borane Coordination Chemistry of Bidentate Ligands, The Preparation and Characterization of F₂PN(CH₃)PF₂B(H₂)B(H₂)," *J. Am. Chem. Soc.*, **99**, 3884 (1977).
22. R.T. Paine, "The Synthesis and Characterization of Methylamino-bis-difluorophosphine Borane(3), Bis-Borane(3) and Triborane(7) Complexes," *Inorg. Chem.*, **16**, 2996 (1977).
23. R.W. Light and R.T. Paine, "The Interaction of the Dicoordinate Phosphorus Cation 1,3-Dimethyl-1,3,2-Diazaphospholidide with Transition Metal Nucleophiles," *Am. Chem. Soc.*, **100**, 2230 (1978).
24. R.W. Light, C.F. Campana, R.T. Paine and B. Morosin, "The Crystal Structure of 2-Fluoro-1,3-Dimethyl-1,2-Diazaphospholidine Sulfide," *Acta Cryst.*, **B34**, 3671 (1978).
25. R.T. Paine and R.W. Light, "The Synthesis and Coordination Chemistry of Cyclopentadienylfluorophosphine Ligands," *Inorg. Chem.*, **18**, 368 (1979).
26. L.H. Jones, R.C. Taylor and R.T. Paine, "Potential Constants of Borane Carbonyl," *J. Chem. Phys.*, **70**, 749 (1979).
27. R.T. Paine, R.W. Light and M. Nelson, "Vibrational Spectra of Uranium(IV) Borohydride and Uranium(IV) Borodeuteride," *Spectrochim. Acta*, **35A**, 213 (1979).
28. R.T. Paine, P.R. Schonberg, R.W. Light, W.C. Danen and S.M. Freund, "Photochemistry of U(BH₄)₄ and U(BD₄)₄," *J. Inorg. Nucl. Chem.*, **41**, 1577 (1979).
29. R.W. Light and R.T. Paine, "The Formation of Diphosphine Monocations and Dications from Methylamino-bis-di-fluorophosphine," *Inorg. Chem.*, **18**, 2345 (1979).
30. P.R. Schonberg, R.T. Paine and C.F. Campana, "The Synthesis, Characterization and Molecular Structure of an Aluminum Pentamethylcyclopentadienyl Complex, [η³-(CH₃)₅C₅Al(Cl)CH₃]₂: An Organometallic Analog of Benzvalene," *J. Amer. Chem. Soc.*, **101**, 7726 (1979).
31. R.W. Light and R.T. Paine, "The Interaction of SO₂ with Aminophosphine Ligands," *Phosphorus and Sulfur*, **8**, 255 (1980).
32. R.T. Paine and M.S. Kite, "The Photochemistry of Uranium Compounds," in "Chemistry of the Actinides," *Amer. Chem. Soc., Symp. Ser.*, **131**, 369 (1980) N. Edlestein, Ed.
33. R.W. Light, L.D. Hutchins, R.T. Paine and C.F. Campana, "Reactions of Aminophosphines with CO₂, COS, and CS₂. The Crystal and Molecular Structure of Tris-dimethylamino-phosphine Tris CS₂," *Inorg. Chem.*, **19**, 3597 (1980).
34. L.D. Hutchins, R.W. Light, R.T. Paine and C.F. Campana, "Structure and Bonding of the Dicoordinate Phosphorus Cation 1,3-Dimethyl-1,3,2-diazaphospholidide with η⁵-C₅H₅Mo(CO)₃," *Am. Chem. Soc.*, **102**, 4521 (1980).
35. J.S. Jessup, R.T. Paine and C.F. Campana, "The Synthesis and Characterization of Borane(3) Complexes of 1,3-Di(tert-butyl)-2,4-difluorodiazadiphosphetidine. The

Crystal and Molecular Structure of the Bis Borane(3) Complex,” *Phosphorus and Sulfur*, 9, 279 (1981).

36. S.M. Bowen, E.N. Duesler and R.T. Paine, “Synthesis and Crystal and Molecular Structure of a Diethyl N,N-Diethyl-carbamoylmethylenephosphonate Thorium Nitrate Complex,” *Inorg. Chem.*, 21, 261 (1982).
37. L.D. Hutchins, R.W. Light and R.T. Paine, “Synthesis, Structure and Bonding of the Bis-Phosphenium Ion-Dicobalt Carbonyl Complex $\text{Co}_2(\text{CO})_5 [\mu\text{-PN}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)]_2$,” *Inorg. Chem.*, 21, 266 (1982).
38. S.M. Bowen, E.N. Duesler, R.T. Paine and C.F. Campana, “The Acidity and Coordination Properties of Carbamoylmethylene-phosphonate Ligands: Synthesis and Molecular Structure of Dialkylcarbamoylmethylenephosphonate Mercury(II) Nitrate Complexes,” *Inorg. Chim. Acta*, 59, 53 (1982).
39. P.R. Schonberg, R.T. Paine and C.F. Campana, “Synthesis and Crystal and Molecular Structures of Pentamethylcyclopenta-dienyl Aluminum Halide Complexes: $[\eta^3\text{-(CH}_3)_5\text{C}_5\text{Al}(\text{Cl})\text{CH}_3]_2$ and $\eta^3\text{-(CH}_3)_5\text{C}_5\text{Al}(\text{Cl})(\text{i-C}_4\text{H}_9)]_2$,” *Organometallics*, 1, 799 (1982).
40. S.M. Bowen, E.N. Duesler and R.T. Paine, “Synthesis and Crystal and Molecular Structure of Diisopropyl N,N-Diethyl-carbamoylmethylenephosphonate Samarium Nitrate and Erbium Nitrate Complexes,” *Inorg. Chim. Acta*, 61, 155 (1982).
41. R.T. Paine, D.C. Moody and E.N. Duesler, “Synthesis and Structure of a Supersandwich Pentanuclear Uranium(IV) Complex,” *Organometallics*, 1, 1097 (1982).
42. L.D. Hutchins, E.N. Duesler and R.T. Paine, “Structure and Bonding in a Phosphenium Ion-Iron Complex: $(\eta^5\text{-(CH}_3)_5\text{C}_5)\text{Fe}(\text{CO})_2[\text{PN}(\text{CH}_3\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3))]_2$,” *Organometallics*, 1, 1254 (1982).
43. S.M. Bowen, E.N. Duesler and R.T. Paine, “Synthesis and Crystal and Molecular Structure of Bis(nitrato)[di-isopropyl-N,N-diethylcarbamoylmethylenephosphonate]-dioxouranium(VI),” *Inorg. Chem.*, 22, 286 (1983).
44. J.J. Jessup, E.N. Duesler and R.T. Paine, “Synthesis and Crystal and Molecular Structure of a Palladium Phosphonate Complex, $\text{Pd}[(\text{i-C}_3\text{H}_7\text{O})_2\text{P}(\text{O})\text{CH}_2\text{C}(\text{O})\text{N}(\text{C}_2\text{H}_5)_2](\text{NO}_3)_2$,” *Inorg. Chim. Acta*, 73, 261 (1983).
45. D.A. DuBois, R.W. Light, E.N. Duesler and R.T. Paine, “Synthesis and Structure of a Bimetallic Diphosphenium Ion Complex Containing a Diazadiphosphetidine Ring,” *Organometallics*, 2, 1903 (1983).
46. R.T. Paine, L.D. Hutchins, D.A. DuBois and E.N. Duesler, “Developments in the Coordination Chemistry of Dicoordinate Phosphenium Ion Ligands,” *Phosphorus and Sulfur*, 18, 263 (1983).
47. S.M. Bowen, E.N. Duesler and R.T. Paine, “Synthesis and Crystal and Molecular Structure of a Methyl N,N-Diethylcarbamoylmethylenephosphonate Dysprosium Thiocyanate Complex,” *Inorg. Chim. Acta*, 84, 221 (1984).
48. D.C. Moody and R.T. Paine, “Low Valent Actinides as Hydrogenation Catalysts,” *J. Cat.*, 85, 536 (1984).
49. L.D. Hutchins, E.N. Duesler and R.T. Paine, “Synthesis and Characterization of Metallo-phosphenium Ion Complexes Derived from Aminohalophosphites. Crystal and

Molecular Structure of $\text{Mo}(\eta^5\text{-C}_5\text{H}_5)(\text{CO}_2)[\text{POCH}_2\text{CH}_2\text{NC}(\text{CH}_3)_3]$,” *Organometallics*, **3**, 399 (1984).

50. D.A. DuBois, E.N. Duesler and R.T. Paine, “Synthesis and Structural Characterization of an Eight-Membered P_4N_4 Cage Compound Analog of S_4N_4 and P_4S_4 ,” *J. Chem. Soc. Chem. Commun.*, 488 (1984).
51. H.J. Wasserman, D.C. Moody, R.T. Paine, R.R. Ryan and K.V. Salazar, “Tetrahydroborate Complexes of Uranium with 2-(Diphenylphosphine) Pyridine,” *J. Chem. Soc. Chem. Commun.*, 533 (1984).
52. D.A. DuBois, E.N. Duesler and R.T. Paine, “Synthesis and Structure of a Bimetallic Iron Carbonyl Diazadiphosphetidine Complex,” *Organometallics*, **3**, 1913 (1984).
53. D.A. DuBois, E.N. Duesler and R.T. Paine, “Formation and X-Ray Crystal Structure Determination of an Unusual Phosphorus-Phosphorus Coupled Bicyclodiphosph(III)azane Complex,” *Inorg. Chem.*, **24**, 3 (1985).
54. S.M. Bowen, D.J. McCabe, E.N. Duesler and R.T. Paine, “Synthesis and Crystal and Molecular Structure of *cis* Dioxodichloro-(diisopropyl-N,N-diethylcarbamoyl-methylene-phosphonate)molybdenum(VI),” *Inorg. Chem.*, **24**, 1191 (1985).
55. J.M. Ritchey, A.J. Zozulin, D.A. Wroblewski, R.R. Ryan, H.J. Wasserman, D.C. Moody and R.T. Paine, “An Organothorium-Nickel Phosphido Complex with a Short Th-Ni Distance. The Structure of $\text{Th}(\text{C}_5\text{Me}_5)_2(\mu\text{-PPh}_2)_2\text{Ni}(\text{CO})_2$,” *J. Am. Chem. Soc.*, **107**, 501 (1985).
56. L.J. Caudle, E.N. Duesler and R.T. Paine, “Formation and Crystal and Molecular Structures of Dioxouranium(VI) Complexes Containing Bidentate Carbamoylmethylphosphinate and Phosphine Oxide Ligands,” *Inorg. Chim. Acta*, **110**, 91 (1985).
57. L.J. Caudel, E.N. Duesler and R.T. Paine, “Preparation and Structure of a Neodymium Complex Containing Bidentate Carbamoylmethylphosphine Oxide Ligands,” *Inorg. Chem.*, **24**, 4441 (1985).
58. D.J. McCabe, E.N. Duesler and R.T. Paine, “Monodentate Coordination by a Tripodal Ligand System: Synthesis and Crystal and Molecular Structure of a Bis-Diisopropyl [1,2-bis(diethylcarbamoyl)ethyl] Phosphonate Erbium Nitrate Complex,” *Inorg. Chem.*, **24**, 4626 (1985).
59. D.A. Wroblewski, R.R. Ryan, H.J. Wasserman, K.V. Salazar, R.T. Paine and D.C. Moody, “Synthesis and Characterization of Bis (Diphenylphosphide) Bis (Pentamethylcyclopentadienyl) Thorium (IV),” *Organometallics*, **5**, 90 (1986).
60. W.F. McNamara, E.N. Duesler, R.T. Paine, P. Kölle and H. Nöth, “Synthesis and Structure of a Metallophosphenium-borane (3) Complex Containing a Bridging BH_3 Group,” *Organometallics*, **5**, 380 (1986).
61. S.M. Bowen and R.T. Paine, “Diethyl {(N,N-Diethylcarbamoyl-methyl} phosphonates,” *Inorg. Syn.*, **24**, 101 (1986).
62. D.J. McCabe, S.M. Bowen and R.T. Paine, “Synthesis of Dialkyl [1,2-bis(diethylcarbamoyl)ethyl] Phosphonates,” *Synthesis*, 320 (1986).
63. C.K. Narula, R.T. Paine and R. Schaeffer, “Precursors to Boron-Nitrogen Macromolecules and Ceramics,” *Mat. Res. Soc. Symp. Proc.*, **73**, 383 (1986).

64. P. Kölle, H. Nöth and R.T. Paine, "Synthese und Struktur eines 1,3,2,4-Diphosphadiboretans," *Chem. Ber.*, **119**, 2681 (1986).
65. C.K. Narula, J.F. Janik, E.N. Duesler, R.T. Paine and R. Schaeffer, "Convenient Synthesis, Separation and X-Ray Structure Determination of 1(e),3(e),5(e) Trimethylborazane and 1(e),3(e),5(a) Trimethylcycloborazene," *Inorg. Chem.*, **25**, 3346 (1986).
66. W.F. McNamara, E.N. Duesler and R.T. Paine, "Formation and Structure of a Ferro Phosphacyclopentenone," *Organometallics*, **5**, 1747 (1986).
67. R.T. Paine, W.F. McNamara, J.F. Janik and E.N. Duesler, "Synthesis and Reactivity of Metallophosphanes," *Phosph. and Sulfur*, **30**, 241 (1987).
68. D.J. McCabe, E.N. Duesler and R.T. Paine, "Synthesis and Structure of Dialkyl-N,N Diethylcarbamoylmethylthiophosphonate Molybdenum (IV) Dichloride," *Inorg. Chem.*, **26**, 2300 (1987).
69. H. Jelinek-Fink, E.N. Duesler and R.T. Paine, "Structure of Pentacarbonyltribromophosphine Chromium(0), $\text{Br}_3\text{PCr}(\text{CO})_5$," *Acta Cryst.*, **C43**, 635 (1987).
70. J.J. Hunt, E.N. Duesler and R.T. Paine, "Structural Study of $\text{Mn}_2(\text{CO})_8[\text{P}(\text{NMe}_2)_3]_2$," *J. Organometal. Chem.*, **320**, 307 (1987).
71. D.J. McCabe, A.A. Russell, S. Karthikeyan, R.T. Paine, R.R. Ryan and B. Smith, "Synthesis and Coordination Chemistry of 2-(diethylphosphonate) and 2-(diphenylphosphine oxide) Pyridyl N-oxides. Crystal and Molecular Structures of Bis(nitrato) [2-diethylphosphonate) Pyridyl N-oxide] dioxouranium (VI) and Bis(nitrato) [2-(diphenylphosphine oxide) Pyridyl N-oxide] dioxouranium (VI)," *Inorg. Chem.*, **26**, 1230 (1987).
72. J.F. Janik, E.N. Duesler and R.T. Paine, "Structural Investigations of Alumino-Amino Carbene Complexes," *J. Organometal. Chem.*, **323**, 149 (1987).
73. G.L. Wood, C.K. Narula, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis and Structure of a Novel Phosphane Borane Cage Compound, $\text{P}_2[\text{BNiPr}]_3$," *J. Chem. Soc. Chem. Commun.*, 496 (1987).
74. L.H. Hutchins, H.U. Reisacher, E.N. Duesler and R.T. Paine, "Synthesis and Structure of Metallophosphonium Complexes Derived From Related Cyclic and Acyclic Aminohalophosphanes," *J. Organometal. Chem.*, **335**, 229 (1987).
75. C.K. Narula, R.T. Paine and R. Schaeffer, "Precursors to Non-Oxide Macromolecules and Ceramics," *ACS Symp. Ser.*, **360**, 378 (1987).
76. C.K. Narula, R. Schaeffer and R.T. Paine, "Synthesis of Boron Nitride Ceramics From Polyborazinyl Amine Precursors," *J. Am. Chem. Soc.*, **109**, 5556 (1987).
77. J.F. Janik, E.N. Duesler and R.T. Paine, "Reactions of Tris-(trimethylsilyl) Aluminum and Ammonia. Formation, Structure and Thermal Decomposition of $[(\text{Me}_3\text{Si})_2\text{Al}(\text{NH}_2)]_2$," *Inorg. Chem.*, **26**, 4341 (1987).
78. C.K. Narula, R.T. Paine and R. Schaeffer, "Precursors to Non-Oxide Ceramics," *Polym. Preps. (Am. Chem. Soc. Div. Polym. Chem.)*, **28**, 454 (1987).
79. J.F. Janik, C.K. Narula, E.G. Gulliver and R.T. Paine, "Reaction Chemistry of Tris(trimethylsilyl)amine with Monohaloboranes," *Inorg. Chem.*, **27**, 1222 (1988).

80. W.F. McNamara, E.N. Duesler and R.T. Paine, "Formation and Molecular Structure of a Dimeric Manganese Isocyanophosphane Complex: $\{\text{CpMn}(\text{CO})[\text{CNP}(\text{Ph})\text{N}(\text{SiMe}_3)_2]\}_2$," *Organometallics*, 7, 384 (1988).
81. D.J. McCabe, E.N. Duesler and R.T. Paine, "Synthesis and Coordination Chemistry of Tripodal Ligands: [Dialkyl[1,2-bis(diethylcarbamoyl)ethyl]phosphonates with Lanthanide Nitrates," *Inorg. Chim. Acta*, 147, 265 (1988).
82. D.J. McCabe, E.N. Duesler and R.T. Paine, "Tridentate Coordination by a Tripodal Ligand System: Synthesis and Crystal and Molecular Structure of Diisopropyl [1,2-bis(diethylcarbamoyl)ethyl]phosphonate] erbium (III)," *Inorg. Chem.*, 27, 1220 (1988).
83. S. Karthikeyan, R.T. Paine and R.R. Ryan, "Model Fluorogenic Ligand-Actinide and Lanthanide Coordination Chemistry. Formation and Crystal and Molecular Structure of $[(i\text{-C}_3\text{H}_7\text{O})_2\text{P}(\text{O})\text{CH}(\text{CH}_2\text{C}_6\text{H}_4\text{NO}_2)\text{C}(\text{O})\text{N}(\text{C}_2\text{H}_5)_2]\text{UO}_2(\text{NO}_3)_2$," *Inorg. Chim. Acta*, 144, 135 (1988).
84. W.F. McNamara, E.N. Duesler and R.T. Paine, "Synthesis and Alkylation of an Iron Phosphane Complex, Crystal and Molecular Structure Determinations for $\text{CpFe}(\text{CO})_2\{\text{P}(\text{C}_6\text{H}_5)\{\text{N}[\text{Si}(\text{CH}_3)_3]_2\}\}$ and $\text{CpFe}(\text{CO})_2\{\text{P}(\text{CH}_3)(\text{C}_6\text{H}_5)\{\text{N}[\text{Si}(\text{CH}_3)_3]_2\}\}$," *Organometallics*, 7, 1313 (1988).
85. G.S. Conary, E.N. Duesler and R.T. Paine, "Coordination Chemistry of 2-Diethylphosphonate-4,6-dipiperidino-1,3,5-triazine with Uranyl Nitrate," *Inorg. Chim. Acta*, 145, 149 (1988).
86. G.S. Conary, A.A. Russell, R.T. Paine and R.R. Ryan, "Synthesis and Coordination Chemistry of 2-(Diisopropoxyphosphino) pyridine N,P-dioxide. Crystal and Molecular Structure of Bis-2-(diisopropoxyphosphino)pyridine N,P-dioxide Lanthanum Nitrate," *Inorg. Chem.*, 27, 3242 (1988).
87. P. Kölle, G. Linti, H. Nöth, G.L. Wood, C.K. Narula and R.T. Paine, "Synthesis and Structures of New 1,3,2,4-Diphosphadiboretans," *Chem. Ber.*, 121, 871 (1988).
88. P. Kölle, H. Nöth, R.T. Paine and W. Rattay, "Synthese, Struktur und Reactionen eines 1,3,2,4 Aza λ^3 Phosphadiboretidin Derivats," *Z. Naturforsch*, 43b, 1439 (1988).
89. J.F. Janik, E.N. Duesler and R.T. Paine, "Formation and Molecular Structure of a Novel Six Coordinate Amino Alane Complex $\{[(\text{CH}_3)_3\text{Si}]_2\text{Al}(\text{NH}_2)_2\}_3\text{Al}$," *Inorg. Chem.*, 27, 4335 (1988).
90. R.T. Paine, J.F. Janik and C.K. Narula, "Synthesis of AlN and AlN/SiC Ceramics from Polymeric Precursors," *Mat. Res. Soc. Symp. Proc.*, 121, 461 (1988).
91. S.L. Blaha, D.J. McCabe, R.T. Paine and K.W. Thomas, "Extraction of Lanthanides with 2-(Dihexylphosphino)pyridine N,P Dioxide," *Radiochim. Acta*, 46, 123 (1989).
92. G.L. Wood, E.N. Duesler, R.T. Paine and H. Nöth, "Coordination Chemistry of the Cage $\text{P}_2(\text{BNPr}_2)_3$," *Phosphorus and Sulfur*, 41, 267 (1989).
93. J.F. Janik, E.N. Duesler, W.F. McNamara, M. Westerhausen and R.T. Paine, "Synthesis and Characterization of Phosphinosilyl Alanes from $[(\text{CH}_3)_3\text{Si}]_3\text{Al}$. Crystal and Molecular Structure Determinations of $\{[(\text{CH}_3)_3\text{Si}]_2\text{AlP}(\text{C}_6\text{H}_5)_2\}_2$, $\{[(\text{CH}_3)_3\text{Si}]_2\text{AlP}(\text{C}_6\text{H}_5)[\text{Si}(\text{CH}_3)_3]_2\}_2$, $\{[(\text{CH}_3)_3\text{Si}]_2\text{AlP}(\text{H})(\text{c-C}_6\text{H}_{11})\}_3$ and $[\{\text{P}(\text{CH}_3)_3\text{Si}\}_2\text{N}\{\text{C}_6\text{H}_5\}\text{P}]_2$," *Organometallics*, 8, 506 (1989).

94. S. Karthikeyan, R.T. Paine and R.R. Ryan, "Synthesis and Coordination Properties of α -Phosphoryl Sulfone, α -Phosphoryl Sulfoxide and α -Phosphoryl Sulfonamide Ligands. Crystal and Molecular Structure Determinations of $\text{UO}_2(\text{NO}_3)_2[(i\text{-C}_3\text{H}_7\text{O})_2\text{P}(\text{O})\text{CH}_2\text{S}(\text{O})_2(\text{C}_6\text{H}_{11})]_2$ and $\text{Gd}(\text{NO}_3)_3[(i\text{-C}_3\text{H}_7\text{O})_2\text{P}(\text{O})\text{CH}_2\text{S}(\text{O})\text{C}_6\text{H}_4\text{CH}_3]\cdot\text{H}_2\text{O}$," *Inorg. Chem.*, 28, 2783 (1989).
95. S.L. Blaha, L.J. Caudle, G.S. Conary, R.T. Paine and K.W. Thomas, "Synthesis and Separation Properties of a Carbamoylmethylphosphonate Immobilized on a Polystyrene Support," *Radiochim. Acta*, 48, 59 (1989).
96. P. Kölle, H. Nöth and R.T. Paine, "Darstellung und Reactionen eines 3-Amino-1,2,3-azaphosphaboriridlins," *Chem. Ber.*, 122, 423 (1989).
97. C.K. Narula, R. Schaeffer, R.T. Paine and A.K. Datye, "Synthesis of Boron Nitride Ceramics from 2,4,6-Triaminoborazine," *Inorg. Chem.*, 28, 4053 (1989).
98. C.K. Narula, A.K. Datye, R. Schaeffer and R.T. Paine, "Formation of Boron Nitride Coatings on Metal Oxide Substrates," *Chem. Mater.*, 1, 486 (1989).
99. A.K. Datye, R.T. Paine, C.K. Narula and L.F. Allard, "Novel Approach for High Resolution TEM Studies of Ceramic-Ceramic Interfaces," *Proc. Mat. Res. Soc.*, 153, 97 (1989).
100. R.T. Paine, G.S. Conary, A.A. Russell, D.J. McCabe, E.N. Duesler, S. Karthikeyan, R. Schaeffer, R.R. Ryan and D. Cromer, "Synthesis of Polyfunctional Organophosphonate Extractants," *Solv. Extr. Ion Exch.*, 7, 767 (1989).
101. R.T. Paine, S.L. Blaha, A.A. Russell and G.S. Conary, "Polymeric Materials for Metal Ion Separations," *Solv. Extr. Ion Exch.*, 7, 925 (1989).
102. R.T. Paine and C.K. Narula, "Synthetic Routes to Boron Nitride," *Chem. Rev.*, 90, 73 (1990).
103. R.R. Rye, T.T. Borek, D.A. Lindquist and R.T. Paine, "Chemical Reactions During the Processing of Borazine Polymers," *J. Amer. Ceram. Soc.*, 73, 1409 (1990).
104. D.A. Lindquist, T.T. Borek, S.J. Kramer, C.K. Narula, G. Johnston, R. Schaeffer, D.M. Smith and R.T. Paine, "Formation and Microstructure of Boron Nitride Aerogels," *Amer. Ceram. Soc.*, 73, 757 (1990).
105. C.K. Narula, D.A. Lindquist, M.M. Fan, A.K. Datye, W.F. Hammetter, R. Schaeffer and R.T. Paine, "Models and Polyborazene Precursors for Boron Nitride Ceramics," *Chem. Mater.*, 2, 377 (1990).
106. C.K. Narula, R. Schaeffer, A.K. Datye, T.T. Borek, B.M. Rapko and R.T. Paine, "Synthesis of Boron Nitride Ceramics from Polymeric Precursors Derived from 2-Dimethylamino-4,6-Dichloroborazenes," *Chem. Mater.*, 2, 384 (1990).
107. D. Cromer, R.R. Ryan, S. Karthikeyan and R.T. Paine, "Structural Studies of Uranyl Complexes of Diphenyl-aminosulfonylmethyl Phosphide Oxide and Diisopropyl-tolylsulfinylmethyl phosphonate," *Inorg. Chim. Acta*, 172, 165 (1990).
108. M.T. Paffett, R.J. Simonson, P. Papin and R.T. Paine, "Borazine Absorption and Decomposition at Pt(111) and Ru(001) Surfaces," *Surf. Sci.*, 232, 286 (1990).
109. A.K. Datye, Q. Xiaomei, T.T. Borek, R.T. Paine and L.F. Allard, "Stability of Boron Nitride Coatings on Ceramic Substrates," *Proc. Mat. Res. Soc.*, 180, 807 (1990).

110. D.A. Lindquist, D.M. Smith, A.K. Datye, G.P. Johnston, T.T. Borek, R. Schaeffer and R.T. Paine, "Boron Nitride and Composite Aerogels from Borazine Based Polymers," *Proc. Mat. Res. Soc.*, 180, 1029 (1990).
111. R.R. Rye, T.T. Borek, D.A. Lindquist and R.T. Paine, "Chemical Reactions During the Thermal Processing of Borazine Polymers," *Proc. Mat. Res. Soc.*, 180, 1401 (1990).
112. G.L. Wood, C.K. Narula, E.N. Duesler, R.T. Paine and H. Nöth, "Formation of Phosphinoborane Rings. A Reinvestigation of the Reaction of $[(CH_3)_2Si]_3P$ and Borane(3)," *Chem. Ber.*, 123, 1455 (1990).
113. G. Linti, H. Nöth, K. Polborn and R.T. Paine, "An Allene-analogous Boranylidenephosphane with B=P Double Bond: 1,1-Diethylpropyl (2,2,6,6-tetramethylpiperidino)-boranylidene phosphane-P-pentacarbonylchromium," *Angew Chem. Intl. Ed.*, 29, 682 (1990).
114. R.R. Rye, T.T. Borek, D.A. Lindquist and R.T. Paine, "Chemical Reactions During the Thermal Processing of Borazine Polymers," *J. Am. Ceram. Soc.*, 73, 1409 (1990).
115. X. Qiu, A.K. Datye, T.T. Borek and R.T. Paine, "Development of Crystallinity in Turbostratic Boron Nitride Derived From Polymeric Precursors," *Proc. Electron Microsc. Soc.*, 954 (1991).
116. R.R. Rye, D.R. Tallant, T.T. Borek, D.A. Lindquist and R.T. Paine, "Mechanistic Studies of the Conversion of Borazine Polymers to Boron Nitride," *Chem. of Mater.* 3 286 (1991).
117. G.S. Conary, R.L. Meline, E.N. Duesler and R.T. Paine, "Synthesis of Bifunctional Phosphonates and Phosphine Oxides. Structural Study of Diphenyl [1-(N,N-diethylcarbamoyl)-2-(phenyl)ethyl] Phosphine Oxide with Uranyl Nitrate," *Inorg. Chim. Acta*, 189, 59 (1991).
118. D.A. Lindquist, T.T. Kodas, D.M. Smith, Q. Xiaomei, S. Hietala and R.T. Paine, "Boron Nitride Powders Formed by Aerosol Decomposition of Polyborazinyllamine Solutions," *J. Amer. Ceram. Soc.*, 74, 3126 (1991).
119. L.F. Allard, A.K. Datye, T.A. Nolan, S.L. Mahan and R.T. Paine, "High Resolution Electron Microscopy of BN on MgO. A Model Ceramic-Ceramic Interface," *Ultramicroscopy*, 37, 153 (1991).
120. T.T. Borek, W. Ackerman, D.W. Hua, R.T. Paine and D.M. Smith, "Highly Porous Boron Nitride for Gas Adsorption," *Langmuir*, 7, 2844 (1991).
121. T.T. Borek, X. Qiu, L.M. Rayfuse, A.K. Datye and R.T. Paine, "Boron Nitride Coatings on Oxide Substrates: Role of Surface Modification," *J. Amer. Ceram. Soc.*, 74, 2587 (1991).
122. D.A. Lindquist, J.F. Janik, A.K. Datye, R.T. Paine and B. Rothman, "Boron Nitride Fibers Processed from Polyborazinyll-Amine Solutions," *Chem. Mater.*, 4, 17 (1992).
123. D. Dou, G.L. Wood, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis and Chemistry of Diborylphosphines," *Inorg. Chem.*, 31, 1695 (1992).
124. D. Dou, G.L. Wood, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis and Structures of $P_2(BNR_2)_3$ Cages," *Inorg. Chem.*, 31, 3756 (1992).
125. X. Qiu, A.K. Datye, R.T. Paine and L.F. Allard, "The Oxidation Stability of Boron Nitride Thin Films on MgO and TiO_2 Substrates," *Proc. Mat. Res. Soc.* 250, 275 (1992).

126. R.T. Paine, "Processing of Boron-Nitrogen Preceramic Polymers," *J. Inorg. Organomet. Polymers*, **2**, 183 (1992).
127. G.S. Conary, R.L. Meline, R. Schaeffer and R.T. Paine, "Synthesis and Coordination Chemistry of Trifunctional Phosphono-Bis-Carbonyl Alkane Ligands," *Inorg. Chim. Acta*, **201**, 165 (1992).
128. D. Dou, E.N. Duesler, R.T. Paine and H. Nöth, "Formation of a Novel P-B-N-C Ring via an Intramolecular Cyclization Process," *J. Am. Chem. Soc.*, **114**, 9691 (1992).
129. G.S. Conary, D.J. McCabe, R.L. Meline, E.N. Duesler and R.T. Paine, "Synthesis and Coordination Chemistry of Trifunctional Carbonyl-Bis Phosphonate Alkane Ligands," *Inorg. Chim. Acta*, **203**, 11 (1993).
130. D. Dou, M. Westerhausen, G.L. Wood, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis and Reaction Chemistry of Aminophosphinoboranes," *Chem. Ber.*, **126**, 379 (1993).
131. H. Nöth, S. Staude, M. Thomann and R.T. Paine, "Darstellung und Reactionen Monomerer Tetraorganylphosphanylborane," *Chem. Ber.*, **126**, 611 (1993).
132. B.M. Rapko, E.N. Duesler, P.H. Smith, R.T. Paine and R.R. Ryan, "Chelating Properties of 2-(Diphenylphosphinomethyl)pyridine N,P-Dioxide and 2,6-Bis(Diphenylphosphinomethyl)pyridine, N,P,P-Trioxide Toward f-Element Ions," *Inorg. Chem.*, **32**, 2164 (1993).
133. G.S. Conary, D.J. McCabe, L.J. Caudle, E.N. Duesler and R.T. Paine, "Synthesis and Structural Studies of Selected Multifunctional Phosphonate and Phosphonic Acid Ligands," *Inorg. Chim. Acta*, **207**, 213 (1993).
134. D. Dou, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis of Cage Compounds Containing P, B, and Si Atoms," *Inorg. Chem.*, **32**, 3056 (1993).
135. J.F. Janik and R.T. Paine, "The System $\text{LiAlH}_4/\text{NH}_4\text{X}$ as a Precursor Source for AlN," *J. Organometal. Chem.*, **449**, 39 (1993).
136. R.T. Paine, D. Dou, M. Westerhausen, E.N. Duesler, G. Linti and H. Nöth, "Synthesis and Reactivity of Borylphosphanes," *Phosph. Sulfur and Silicon*, **77**, 61 (1993).
137. B. Kaufmann, H. Nöth, R.T. Paine, K. Polborn and M. Thomann, "Carbonyl-Metal Complexes of Diphosphadiboretane (MesBP^tBu)₂ and Triphosphatriborinane (MesBP^tBu)₃," *Angew. Chem. Intl. Ed.*, **32**, 1446 (1993).
138. J.F. Janik, E.N. Duesler and R.T. Paine, "Synthesis of a Novel Azaalane Ring," *Chem. Ber.*, **126**, 2649 (1993).
139. M.E. Bartram, T.A. Michalski, J.W. Rogers and R.T. Paine, "Nucleation and Growth of AlN: Self-limiting Reactions and Regeneration of Active Sites Using Sequential Exposures of Trimethylaluminum and Ammonia on Silica at 600°K," *Chem. Mat.*, **5**, 1424 (1993).
140. G. Linti, H. Nöth and R.T. Paine, "On the Complex Formation of 1,3,2,4-Diphosphadiboretanes with Pentacarbonylchromium and the Preparation and Reactivity of Borylidenephosphane Complexes," *Chem. Ber.*, **126**, 875 (1993).
141. R.T. Paine, M. Fan, A. Hanprasopwattana and A.K. Datye, "Synthesis and Processing of Boron Nitride Polymers," *Polym. Prepr. (Am. Chem. Soc. Div. Polym. Chem.)*, **34**, 336 (1993).

142. T. Chen, E.N. Duesler, R.T. Paine and H. Nöth, "Assembly of a Spirocyclic $[(R_2NB)_2P_2]_2Si$ Cage," *Phosph. Sulfur and Silicon*, **87**, 41 (1994).
143. R.T. Paine, J.F. Janik and M. Fan, "Some Recent Developments in Precursor Routes to Ceramic Nanocomposites," *Polyhedron*, **13**, 1225 (1994).
144. D. Dou, M. Fan, T. Chen, E.N. Duesler, H. Nöth and R.T. Paine, "Synthesis and Reactivity of New Diborylphosphanes," *Inorg. Chem.*, **33**, 2151 (1994).
145. J.F. Janik, W.C. Ackerman, R.T. Paine, D.W. Hua, A. Maskara and D.M. Smith, "Boron Nitride as a Selective Gas Adsorbent," *Langmuir*, **10**, 514 (1994).
146. B. Kaufmann, N. Metzler, H. Nöth and R.T. Paine, "1,3,5-Triphenyl-2,4,6-trimesityl-1,3,5,2,4,6-triphosphatriborinane: a 6π -electron Heteroaromatic Ligand," *Chem. Ber.* **127**, 825 (1994).
147. H. Nöth, S. Staude, M. Thomann, J. Kroner and R.T. Paine, "Reactions of Monomeric Phosphanylboranes with Acyl Chlorides: 1-Oxa-3-oxonia-5-phospha-2-borata-3,5-cyclohexadienes," *Chem. Ber.*, **127**, 1923 (1994).
148. R.T. Paine and L.G. Sneddon, "Borazine-based Polymers Close in on Commercial Performance," *CHEMTECH*, July, 1994, 29.
149. R.T. Paine and L.G. Sneddon, "Recent Developments in Borazine Based Polymers," *ACS Symp. Ser.*, **572**, 358 (1994).
150. T. Chen, E. Duesler, R.T. Paine and H. Nöth, "Synthesis of Main Group Ring and Cage Compounds," *Phosph. Sulfur and Silicon*, **93**, 73 (1994).
151. H. Nöth and R.T. Paine, "Recent Advances in Phosphinoborane Chemistry," *Chem. Rev.*, **95**, 343 (1995).
152. A.A. Russell, R.L. Meline, E.N. Duesler and R.T. Paine, "Synthesis and Coordination Chemistry of 2,6-Bis(diethoxyphosphino)pyridine P,P-dioxide. Crystal and Molecular Structure of $\{[(EtO)_2P(O)]_2C_5H_3N\}UO_2(NO_3)_2$," *Inorg. Chim. Acta*, **231**, 1 (1995).
153. U. Englehardt, B.M. Rapko, E.N. Duesler, D. Frutos and R.T. Paine, "Synthesis and Molecular Structures of Complexes of Bismuth Nitrate with 2,6-Bis(Phosphinomethyl)pyridine N,P,P' Trioxide," *Polyhedron*, **14**, 2361 (1995).
154. X. Gan, E.N. Duesler, E. Bond, P.H. Smith and R.T. Paine, "Synthesis and Coordination Properties of 6,6'-Bis(Diphenylphosphinomethyl)2,2'-bipyridine N,N',P,P' Tetraoxide," *Inorg. Chim. Acta*, **247**, 29 (1996).
155. B. Nieslanik, E.N. Duesler, L. Miao, S.C. Jackels and R.T. Paine, "PyO₂[18]diene N₆•4HBr•H₂O," *Acta Cryst. C*, **C52**, 205 (1996).
156. H.U. Reisacher, E.N. Duesler and R.T. Paine, "Formation of Metallophosphenium Cluster Complexes. Crystal and Molecular Structure of CpMo(CO)(u-CO)Fe(CO)₃P(C₆H₅){N[Si(CH₃)]₃}₂," *Chem. Ber.*, **129**, 279 (1996).
157. D. Dou, G. Linti, E.N. Duesler, R.T. Paine and H. Nöth, "Formation and Coordination Chemistry of Aminophosphanylboranes," *Inorg. Chem.*, **35**, 3626 (1996).
158. B. Kaufmann, H. Nöth and R.T. Paine, "Formation, Structure, and Reactions of a P,P'-Bi(1,3,2,4-diphosphodiboretane," *Chem. Ber.*, **129**, 557 (1996).

159. S. Grundei, H. Nöth and R.T. Paine, "Reactions of a 1,2-Diphospha-3, 4-Diboretane With Some Metal Carbonyls," *Chem. Ber.*, **129**, 1233 (1996).
160. E.M. Bond, U. Engelhardt, T.P. Deere, B.M. Rapko, R.T. Paine and J.R. Fitzpatrick, "The Solvent Extraction of Americium(III) in Nitric Acid Solutions by 2,6-Bis[(Diphenyldiphosphino)methyl]Pyridino N,P,P' Trioxide," *Solv. Extract. Ion Exch.*, **15**, 381 (1997).
161. W.F. McNamara, H.U. Reisacher, E.N. Duesler and R.T. Paine, "Reactions of Molybdenum and Tungsten Phosphenium Complexes with Sulfur and Selenium," *Organometallics*, **16**, 449 (1997).
162. T.Chen, E.N. Duesler, B. Kaufmann, R.T. Paine and H. Nöth, "Synthesis of Cage Compounds Containing Boron, Phosphorus and Tin," *Inorg. Chem.*, **36**, 1070 (1997).
163. T. Chen, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis of Cage Compounds Containing Boron, Phosphorus and Germanium," *Inorg. Chem.*, **36**, 802 (1997).
164. T. Chen, E.N. Duesler, R.T. Paine and H. Nöth, "Assembly of a Triple Cage Species Containing B, P and Si Atoms," *Inorg. Chem.*, **36**, 1534 (1997).
165. T. Chen, E. N. Duesler, R. T. Paine and H. Nöth, "Synthesis and Assembly Mechanism for Spirocyclic Cage Compounds Containing B, P and Si atoms," *Chem. Ber.*, **30**, 933 (1997).
166. H.U. Reisacher, E.N. Duesler and R.T. Paine, "Reactions of Molybdenum Phosphenium Complexes with Carbenoid Reagents," *J. Organometal. Chem.*, **539**, 36 (1997).
167. J. F. Janik, E. N. Duesler and R. T. Paine, "Preparation and Characterization of Bis-(Trimethylsilyl)Aminoalanes, $[H_2AlN(SiMe_3)_2] \cdot NMe_3$ and $\{HAL[N(SiMe_3)_2]_2\}_n$. Crystal Structure Determination for Tris-(Trimethylsilyl)Alane Trimethylamine Adduct, $(Me_3Si)_3Al \cdot NMe_3$," *J. Organometal. Chem.*, **539**, 19(1997).
168. T. Chen, R. T. Paine, E. N. Duesler and H. Nöth, "New BP Cage Species," *Phosphorus, Sulfur and Silicon*, **124/125**, 1 (1997).
169. H.U. Reisacher, E.N. Duesler and R.T. Paine, "Reactions of Protic Reagents with a Tungsten Phosphenium Ion Complex", *J. Organometal. Chem.*, **564**, 13 (1998).
170. E.M. Bond, U. Engelhardt, T.P. Deere, B.M. Rapko, R.T. Paine and J.R. Fitzpatrick, "The Solvent Extraction of Americium(III) from HCl Solutions by 2,6-Bis[Diphenylphosphino)methyl]pyridine N,P,P' Trioxide," *Solvent Extr. and Ion Exchange*, **16**, 967 (1998).
171. T. Chen, E. N. Duesler, R. T. Paine and H. Nöth, "Formation of Cage Compounds Containing Boron, Phosphorus and a Transition Metal Atom," *Inorg. Chem.*, **37**, 490 (1998).
172. E. M. Bond, X. Gan, J. R. FitzPatrick and R. T. Paine, "Coordination Chemistry and Extraction Properties of Phosphonopyridine N,P Oxides," *J. Alloys and Compounds*, **271-273**, 172 (1998).
173. B. Kaufmann, H. Nöth, M. Schmidt and R. T. Paine, "Some Oxidative Addition Reactions with a Diphosphadibora[1.1.0]bicyclobutane: Formation of Cage Compounds and an Unusual Trinuclear Coordination Compound of Palladium," *Inorg. Chim. Acta*, **269**, 101 (1998).

174. D. Srivastava, M. Fan, E.N. Duesler and R.T. Paine, "Synthesis and Utilization of Silylborazines as Precursors to Silicon Containing Boron Nitride," *Eur. J. Inorg. Chem.*, 855 (1998).
175. D. Dou, E.N. Duesler and R.T. Paine, "Synthesis and Structural Characterization of New Polyphosphorus Ring and Cage Compounds," *Inorg. Chem.*, 38, 788 (1999).
176. T. Chen, J. Jackson, S.A. Jasper, E. N. Duesler, H. Nöth and R.T. Paine, "Coordination Chemistry of Aminoborylphosphanes," *J. Organometal. Chem.*, 582, 25 (1999).
177. M.P. Wilkerson, C.J. Burns, R.T. Paine and B.L. Scott, "Synthesis and Crystal Structure of $\text{UO}_2\text{Cl}_2(\text{THF})_3$: A Simple Preparation of Anhydrous Uranyl Reagents," *Inorg. Chem.*, 38, 4156 (1999).
178. R.T. Paine, W. Koestle, T.T. Borek, E.N. Duesler, G.L. Wood and M.A. Hiskey, "Synthesis, Characterization and Explosive Properties of the Nitrogen Rich Borazine $[\text{H}_3\text{N}_3\text{B}_3(\text{N}_3)_3]$," *Inorg. Chem.*, 38, 3738 (1999).
179. T. Chen, E.N. Duesler, R.T. Paine and H. Nöth, "Synthesis and Chemistry of Boraphosphinosilanes and Germanes," *Inorg. Chem.*, 38, 4993 (1999).
180. E.A. Pruss, G.L. Wood, W.J. Kroenke and R.T. Paine, "Aerosol Assisted Vapor Synthesis (AAVS) of Spherical Boron Nitride Powders," *Chem. Mater.*, 12, 19 (2000).
181. M.P. Wilkerson, C.J. Burns, R.T. Paine and B.L. Scott "Synthesis and Structure of Tetrakis(2,6-dichlorophenoxide)bis(THF)Uranium(IV)" *J. Chem. Crystall.* 30, 7 (2000).
182. M.P. Wilkerson, C.J. Burns, H.J. Dewey, J.M. Martin, D.E. Morris, R.T. Paine and B.L. Scott, "Basicity of Uranyl Oxo Ligands upon Coordination of Alkoxides" *Inorg. Chem.*, 39, 5277 (2000).
183. X.-M. Gan, S. Parveen, W.L. Smith, E.N. Duesler and R.T. Paine, "Synthesis, Characterization and Coordination Chemistry of a New Structurally Hindered Trifunctional Ligand, 4,5-Bis(diphenylphosphino)-*sym*-octahydroacridine N,P,P'-trioxide," *Inorg. Chem.* 39, 4591 (2000).
184. E.M. Bond, E.N. Duesler, R.T. Paine, M.P. Neu, J.H. Matonic and B.L. Scott, "Synthesis and Molecular Structure of a Plutonium (IV) Coordination Complex: $[\text{Pu}(\text{NO}_3)_2\{2,6-[(\text{C}_6\text{H}_5)_2\text{P}(\text{O})\text{CH}_2]_2\text{C}_5\text{H}_3\text{NO}\}_2](\text{NO}_3)_2 \cdot 1.5\text{H}_2\text{O} - 0.5\text{MeOH}$," *Inorg. Chem.* 39, 4152 (2000).
185. E.M. Bond, E.N. Duesler, R.T. Paine and H. Nöth, "Isolation and Structure of a Europium (III) Chloride Complex of 2,6-Bis{(Diphenyl phosphino)methyl}pyridine N,P,P' Trioxide," *Polyhedron*, 19, 2135 (2000).
186. T. Chen, E.N. Duesler, H. Nöth and R.T. Paine, "Synthesis and Coordination Behavior of a Zirconocene Bis(Borylphosphane)," *J. Organometal. Chem.*, 614-615, 99 (2000).
187. R.F. Hill, R. Danzer and R.T. Paine, "Synthesis of Aluminum Oxide Platelets," *J. Amer. Ceram. Soc.*, 84, 514 (2001).
188. G.L. Wood, E.A. Pruss and R.T. Paine, "Aerosol Assisted Vapor Phase Synthesis of Gallium Nitride Powders," *Chem. Mater.*, 13, 12 (2001).
189. Y.-C. Tan, X.-M. Gan, J.L. Stanchfield, E.N. Duesler and R.T. Paine, "Synthesis and Lanthanide Ion Coordination Chemistry of 2,6-Bis(diphenylphosphinomethyl)benzene," *Inorg. Chem.*, 40, 2910 (2001).

190. X. Gan, E.N. Duesler and R.T. Paine, "Synthesis and Coordination Properties of New Bis(Phosphonomethyl) Pyridine N,P,P' Trioxides," *Inorg. Chem.*, **40**, 4420 (2001).
191. R.T. Paine, Y.C. Tan and X. Gan, "Synthesis and Coordination Chemistry of 2,6-bis(Phosphinomethyl)Phenol P,P'-Dioxides," *Inorg. Chem.*, **40**, 7009 (2001).
192. R.T. Paine, E.A. Pruss, G.L. Wood, C. Schwierkowski, R.F. Hill, C. Chapelle and W.J. Kroenke "Boron Nitride Fillers for Organic Polymer Composites", *ACS Symp.* **804**, 27 (2001).
193. E.M. Bond, N. Donhart, E.N. Duesler, H. Nöth and R.T. Paine, "Synthesis and Coordination Properties of 1-Diphenylphosphineoxide-1-(2-Pyridyl N-Oxide) Propane," *Inorg. Chem.*, **41**, 444 (2002).
194. J.H. Matonic, M.P. Neu, R.T. Paine and B.L. Scott, "Synthesis and Crystal Structure of a Ten Coordinate Plutonium(IV) Ion Complexed by the Extractant Diphenyl phosphinomethylpyridine N,P-Dioxide $\text{Pu}(\text{NO}_3)_3\{2-[(\text{C}_6\text{H}_5)_2\text{P}(\text{O})\text{CH}_2]\text{C}_5\text{H}_4\text{NO}\}[\text{Pu}(\text{NO}_3)_6]_{0.5}$," *J. Chem. Soc. Dalton Trans.*, 2328 (2002).
195. M.P. Wilkerson, C.J. Burns, D.E. Morris, R.T. Paine and B.L. Scott "Steric Control of Substituted Phenoxide Ligands on Product Structures of Uranyl Aryloxide Complexes" *Inorg. Chem.* **41**, 3110 (2002).
196. K.L. Nash, C. Lavallette, M. Borkowski, R.T. Paine and X. Gan, "Features of the Thermodynamics of Two-Phase Distribution Reactions of Americium (III) and Europium (III) Nitrates into Solutions of 2,6-bis[(di-2-ethylhexylphosphino)methyl]pyridine-N,P,P'-trioxide" *Inorg. Chem.* **41**, 5849 (2002).
197. J.H. Matonic, A.E. Enriquez, B.L. Scott, R.T. Paine and M.P. Neu "Eight and Nine Coordinate Plutonium (IV) Complexes of the f-Element Extractant 2,6-Bis(diphenylphosphinomethyl) Benzene P,P'Dioxide" *J. Nucl. Sci. Tech.* (Suppl. 3) 400 (2002).
198. X. Gan, R.T. Paine, E.N. Duesler and H. Nöth "Synthesis and Coordination Chemistry of Arene Soluble 4-Alkyl-2,6-bis[(diphenylphosphino)methyl] pyridine N,P,P'-trioxide Ligands" *J. Chem. Soc. (Dalton)* 153 (2003).
199. M. Fan, E.N. Duesler and R.T. Paine "Syntheses and Structure of an Amidoimidotitanium Cage Complex" *Applied Organometal. Chem.* **17**, 549 (2003).
200. X. Gan, E.N. Duesler and R.T. Paine "Synthesis of Trifunctional Ligands Containing Thiophosphoryl, Pyridine and Pyridine N-oxide Donor Groups", *J. Chem. Soc.(Dalton)*, 4704 (2003).
201. J.F. Janik, M. Drygas, C. Czosnek, M. Kaminska, M. Palczewska and R.T. Paine "Carbothermally-assisted Aerosol Synthesis of Semiconducting Materials in the System GaN/Mn". *J. Phys. Chem. Solids* **65**, 639 (2004).
202. X. Gan, I. Binyamin, B.M. Rapko, J. Fox, E.N. Duesler and R.T. Paine "Layered Framework Structures Constructed from 2-(Pyridyl N-oxide) methylphosphonic Acid Ligands and Er (III). *Inorg. Chem.* **43**, 2443 (2004).
203. X. Gan, B.M. Rapko, E.N. Duesler, I. Binyamin, R.T. Paine and B.P. Hay "Synthesis and Lanthanide Coordination Chemistry of 2,6-Bis[(dicyclohexylphosphino)methyl]pyridine N,P,P'-Trioxide" *Polyhedron* **24**, 469 (2005).

204. G.L. Wood, J.F. Janik, M.Z. Visi, D.M. Schubert and R.T. Paine "New Borate Precursors for Boron Nitride", *Chem. Mater.* **17**, 1855 (2005).
205. R.T. Paine, H. Nöth, T. Habereeder, J.F. Janik, E.N. Duesler and D. Dreissig "Recent Developments in Boron-Phosphorus Ring and Cage Chemistry" *ACS Symp. Ser.* **917**, 152, (2005).
206. K. Knabel, W. Lippert, H. Nöth and R.T. Paine "A Bicyclo [1.1.0]-1,3,2,4-diphosphadiboretane Cation and an Imido(phosphinidene)borane AlBr_3 Adduct" *Eur. J. Inorg. Chem.* 1099 (2005).
207. M. Drygas, C. Czosnek, R.T. Paine and J.F. Janik "Aerosol-assisted Vapor Phase Synthesis of Powder Composites in the Target System GaN/TiN for Potential Electronic Applications" *Mater. Res. Bull.* **40**, 1136 (2005).
208. G.L. Wood, J.F. Janik, E.A. Pruss, D. Dreissig, W.J. Kroenke, T. Habereeder, H. Nöth and R.T. Paine "Aerosol Synthesis of Spherical Morphology Boron Nitride Powders from Organoborate Precursors" *Chem. Mater.* **18**, 1434 (2006).
209. J. Janik, M. Drygas, S. Stelmakh, E. Grzanka, B. Palosz and R.T. Paine "Tuning aerosol-assisted vapor phase processing towards low oxygen GaN powders" *Phys. Status, Solidi(a)* **203**, 1301 (2006).
210. X. Gan, B.M. Rapko, J. Fox, I. Binyamin, S. Pailloux, E.M. Duesler and R.T. Paine "A Three Dimensional Framework Structure Constructed from 2-(Pyridyl N-oxide) Ethylphosphonic Acid and Nd(III)" *Inorg. Chem.* **45**, 3741 (2006).
211. K. Knabel, R.T. Paine and H. Nöth "Behavior of 1,3-Di(tert-butyl)-2,4-bis(tetramethylpiperidino)-1,3,2,4-diphosphodiboretane towards Boron Habder and Adduct Formation of a Bicyclo [1.1.0] diphosphodiboretane with Tris(pentafluorophenyl)borane" *Z. Naturforsch Sect. B* **61**, 265 (2006).
212. M. Drygas, C. Czosnek, R.T. Paine and J.F. Janik "Two-Stage Aerosol Synthesis of Titanium Nitride TiN and Titanium Oxynitride TiO_xN_y Nanopowders of Spherical Particle Morphology" *Chem. Mater.* **18**, 312 (2006).
213. I. Binyamin, S. Pailloux, E.N. Duesler, B.M. Rapko and R.T. Paine "Synthesis and Lanthanide Coordination Properties of New 2,6-Bis(N-t-Butylacetamido) Pyridine and 2,6-Bis(N-t-Butylacetamido) Pyridine N-oxide Ligands" *Inorg. Chem.* **45**, 5886 (2006).
214. X. Gan, I. Binyamin, S. Pailloux, E.N. Duesler and R.T. Paine "Formation of a Layered Framework Structure Based Upon 4-Methyl-2,6-Bis(methylphosphonic acid)Phenol" *J. Chem. Soc. Dalton* 3912 (2006).
215. J. Gosk, M. Drygas, J.F. Janik, M. Palczewska, R.T. Paine and A. Twardowski "Magnetic and Optical properties of (GaMn)N nanocrystalline powders obtained by the aerosol-assisted vapor phase synthesis and anerobic imide route methods" *J. Phys. D. Applied Phys.* **39**, 3717 (2006).
216. I. Binyamin, S. Pailloux, B.P. Hay, E.N. Duesler, B.M. Rapko and R.T. Paine "Synthesis of Propionamide Pyridine and Pyridine N-oxide Ligands" *J. Heterocyclic Chem.* accepted.
217. X. Gan, I. Binyamin, B.M. Rapko, J. Fox, E.N. Duesler and R.T. Paine "Formation of a 1-D Chain Structure from Nd(III) and 2,6-bis(methylphosphonic acid)pyridine N-oxide" *Polyhedron* accepted.

218. G.L. Wood and R.T. Paine "Aerosol Synthesis of Hollow Spherical Morphology Boron Nitride Particles" *Chem. Mater.* accepted.
219. M. Fan, R.T. Paine, E.N. Duesler and H. Nöth "Synthesis and Molecular Structure of Tris[(trimethylsilyl)silyl](diisopropylamino)(diphenylphosphino) borane" *Z. Anorg. Allgem. Chem* accepted.
220. M. Fan, E.N. Duesler, J.F. Janik and R.T. Paine "Transamination Reactivity of $\text{Ti}(\text{NMe}_2)_4$ and $\text{Zr}(\text{NMe}_2)_4$ with 1,3,4,5,6-Pentamethyl-2-amino Borazine and Aryl Amines. Model Chemistry for the Formation of Metalloborazine Preceramic Polymers and MN/BN (M = Ti, Zr) Ceramic Composites" *J. Inorg. Organomet. Polym. Mater.* submitted.
221. B. Gannaz, G. Cote, R.T. Paine, M. Borkowski and, K.L. Nash "Thermodynamic Features of the Extraction of $\text{UO}_2(\text{NO}_3)_2$ by 2,6-bis[(dioctylphosphino)methyl]pyridine-N,P,P'-trioxide" *Solv. Extr. Ion Exch.* submitted.