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Education:	1979 BS, The University of Tokyo 1985 PhD, The University of Tokyo
Awards:	1992 Incentive Award in the Synthetic Organic Chemistry, Japan; 1996 Incentive Award of the Society of Silicon Chemistry, Japan; 1998 Japan IBM Science Award; 2003 Chemical Society of Japan Award for Creative Work; 2003, 2013 Humboldt Research Award
Current research interests:	Creation and investigation of novel bonding and structures in heavier main-group-element chemistry; synthetic chemistry; organometallic chemistry; coordination chemistry
Hobbies:	Caring for foliage plants

The author presented on this page has published more than **10 articles** in *Angewandte Chemie* in the last 10 years, most recently: "Encapsulating Inorganic Acetylene, HBNH, Using Flanking Coordinative Interactions": A. K. Swarnakar, C. Hering-Junghans, K. Nagata, M. J. Ferguson, R. McDonald, N. Tokitoh, E. Rivard, *Angew. Chem. Int. Ed.* **2015**, 54, 10666; *Angew. Chem.* **2015**, 127, 10812.

The principal aspect of my personality is I am always optimistic.

My favorite painter is Alfred Sisley.

My favorite composer is Frédéric Chopin.

The natural talent I would like to be gifted with is an aptitude for painting.

My motto is "One for all, and all for one".

When I was eighteen I wanted to be not a chemist but a physicist.

If I could be any age I would be eighteen.

The biggest challenge facing scientists is building a sustainable society.

Chemistry is fun because it is full of creativity.

My favorite drink is Japanese distilled spirits.

The most significant historic event of the past 100 years was the end of the Cold War.

My first experiment was the Birch reduction of benzene.

In a spare hour, I take care of foliage plants.

My favorite saying is "make haste slowly".

Young people should study chemistry because it can be used to create new functions and materials.

My favorite time of day is a fresh morning.

I advise my students to pick themselves up when things are not going well.

My favorite way to spend a holiday is gardening.

My favorite piece of research is the multiple bonding of heavier main-group elements.

My science "heroes" are Friedrich August Kekulé von Stradonitz and Linus Carl Pauling.

Has your approach to chemistry research changed since the start of your career?

I started my research career as an organic chemist engaged in the synthesis of methano-bridged hetero[9]annulenes, which were worthy of attention in those days from the standpoint of physical organic chemistry. Later on, I was involved the chemistry of unique heteroatom-containing bonding and structures such as novel cyclic polychalcogenides and heterocumulenes. As the work evolved, I have investigated the chemistry of low-coordinated species of a variety of heavier main-

group elements, such as ketone, azo compound, and arene homologues, from the perspective of not only synthetic and structural chemistry, but also organometallic and coordination chemistry.

What advice would you give to up-and-coming scientists?

If you want to carry out leading research, you should not be a copycat and should work with an indomitable spirit. In addition, you should have a wide range of interests in the interdisciplinary research field related to your own science.

My 5 top papers:

1. "Synthesis and Characterization of a Stable Dibismuthene: Evidence for a Bi–Bi Double Bond": N. Tokitoh, Y. Arai, R. Okazaki, S. Nagase, *Science* **1997**, 277, 78.
Dibismuthene, the compound with a double bond between two Bi atoms, was synthesized and isolated as a stable crystalline compound. This is an important application of kinetic stabilization afforded by bulky substituents and the experimental data on the Bi=Bi bond make it possible to discuss the relativistic effect of heavier elements together with theoretical studies.
2. "Synthesis and Crystal Structure of the First Stable Germanethione": N. Tokitoh, T. Matsumoto, K. Manmaru, R. Okazaki, *J. Am. Chem. Soc.* **1993**, 115, 8855.
The heavier congeners of ketones, i.e., compounds with double bonds between heavier Group 14 and 16 elements, were very difficult to synthesize and isolate because of their high reactivity towards oxygen and moisture and/or their predisposition towards oligomerization. In this paper, we showed that a stable germanethione $\text{Ar}_2\text{Ge}=\text{S}$ can be isolated as a colored species, and revealed the trigonal planar geometry of the germathiocarbonyl unit, similar to that observed for ketones, by X-ray crystallographic analysis.
3. "Synthesis and Properties of an Overcrowded Silabenzene Stable at Ambient Temperature": K. Wakita, N. Tokitoh, R. Okazaki, S. Nagase, *Angew. Chem. Int. Ed.* **2000**, 39, 634; *Angew. Chem.* **2000**, 112, 648.
Kinetic stabilization by bulky aryl substituents enabled the synthesis and isolation of a silabenzene as a stable

compound. By taking advantage of a similar synthetic approach, monosila-aromatic species such as 1- and 2-silaphthalenes, 9-silaanthracene, and 9-silaphenanthrene were synthesized. Based on these results, the chemistry of heavy congeners of aromatic compounds developed remarkably.

4. "Synthesis and Reactions of a Stable 1,2-Diaryl-1,2-dibromodisilene: A Precursor for Substituted Disilenes and a 1,2-Diaryldisilyne": T. Sasamori, K. Hironaka, Y. Sugiyama, N. Takagi, S. Nagase, Y. Hosoi, Y. Furukawa, N. Tokitoh, *J. Am. Chem. Soc.* **2008**, 130, 13856.
The reduction of 1,2-dibromodisilene resulted in the formation of a stable 1,2-diaryldisilyne, the first reported C-substituted $\text{Si}=\text{Si}$ triple-bond compound. The novel synthetic approach and the spectral and structural features of this disilyne provided us with new insights for the heavier congeners of alkynes.
5. "Synthesis and Properties of 4,5,6-Triphospha[3]radialene": H. Miyake, T. Sasamori, N. Tokitoh, *Angew. Chem. Int. Ed.* **2012**, 51, 3458; *Angew. Chem.* **2012**, 124, 3514.
4,5,6-Triphospha[3]radialene was successfully synthesized and isolated as a new member of the heterat[3]radialene family. This unique class of heterat[3]radialenes is of great interest and importance from the viewpoints of not only physical organic chemistry (a unique cross-conjugated system and a π building block) but also coordination chemistry (a novel ligand for transition-metal complexation).

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